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Minor Complications of Pregnancy and Their Treatment*

BRUNEL D. FARIS, M.D.
OKLAHOMA CITY, OKLAHOMA

Many of the so-called minor complaints of women during pregnancy are overlooked or simply neglected as unimportant by the average practitioner.

For the past five years in the out patient department of University Hospital and Goodwill Center, we have been studying these minor complaints associated with pregnancy and have been taught to respect them as perhaps the first signs of impending serious complications. We have therefore endeavoured to list the minor complaints in order of their frequency as well as to present their treatment. It must be understood that these patients are clinical cases and are not able in many instances to receive the treatment they should have, i.e., rest in bed many times an impossible order for a woman who has a family of small children and must of necessity care for them. A diet rich in vitamins would possibly be out of the question either due to lack of finances or ignorance.

BACKACHE

Backache has been in our experience the most common complaint of these patients. This complication is usually a complaint in the second trimester and is far more common in multiparous women. Dieckman believes that in many instances this backache is a symphyseal pain and is an early stage of an osteo-malacia. He recommends calcium be given with cod liver oil. We give Viosterol 10 minums daily until 5 cc are given and calcium lactate grains 5 T.I.D. for three to four weeks. We have found this complaint many times associated with pregnancies that are too close together. In a primipara backache is usually due to improper posture and to incorrect selection of shoes with a resulting strain on the sacro-lumbar junction. Backache of this type may be greatly relieved by the wearing of one type of shoe at all times. In other words, a woman must not wear slippers around the house and then, on going out, wear high-heeled shoes. If this advice does not relieve the condition we have found that relief of tension of the supporting ligaments may render these women free of pain. Our methods of securing this relief for these patients is to instruct them to sleep with the foot of the bed elevated approximately eight inches for from two to three weeks. We also instruct them to wear abdominal support which may be made of any close weave material, pinned securely around the abdomen from below upward and while they are in a prone position.

There is another type of backache common in the earlier months of pregnancy which is due to the rapid growth of the fundus and the stretching of its supporting ligaments. This type of backache usually disappears after four or five months of pregnancy. For these cases we often strap the back with adhesive for relief. The adhesive should be about four inches wide, crossing the lumbar sacral region and extending from one crest of the ilium to the other. The patient should be standing erect, heels together and the feet everted as much as possible. In the last trimester backache may occasionally be very severe and in our opinion may be due to the stretching of the round ligaments more than to the pelvic joint relaxation. Sleeping with the foot of the bed elevated greatly relieves these

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women and this procedure should be followed until term. These patients are advised to wear the above described abdominal support, but they should be removed at night. These women should be advised not to lift or carry the younger children about the house.

HEADACHE

Headache associated with pregnancy is usually in the frontal region and is seen more commonly in the latter months. On many occasions we have advised these patients to have their eyes tested for visual disturbances and found their eyes to be normal. At one time about two years ago we had what we called an epidemic of headaches in pregnant women. After trying many treatments with no success, cultures were made of the throat and a predominance of streptococcus hemolyicus was found. On treatment of the throat, headaches disappeared.

It is possible that diet may have something to do with the cause, and that a well balanced diet could be given to private patients but hardly to a clinical case. Antuitrin S (Parke, Davis) has been suggested as treatment for these cases, but we have not used this preparation as yet in the clinic. My limited experience with the use of this preparation has been fairly successful. I usually give one-half cc three times a week until condition is relieved. For direct relief we have found nothing better than Empirin Compound tablets, (Burrough & Welcome). We have traced many of these headaches to exposure to the sunrays and are therefore careful to suggest some sort of protection for the head. Headache in the last trimester of sudden onset may be the first symptom of an impending eclampsia, and especially if associated with blindness or other visional disturbances it should always be suspected. I have never seen a case of eclampsia that did not give a history of headache, severe in type a few hours, days, or weeks before the onset of convulsions, and to my notion headache should be classed as one of the most common symptoms of impending eclampsia.

CONSTIPATION

We have not had much success with the use of drugs for the treatment of constipation in pregnancy. These cases should be treated as to type, whether spastic or simply atonic. We believe that the spastic type is more commonly seen in pregnant women because of their nervous tension. Bulky foods should therefore not be given and the condition is sometimes greatly relieved by sedatives. Mineral oil besides being very distasteful to many may cause spotting and occasional indigestion. Our best treatment so far has been the use of epsom salts, one-fourth to one-half teaspoonful in a glass of warm water before breakfast. Lately we have been using metamucil, one teaspoon in a glass of cold water three times daily before meals, but have not had sufficient time to determine results. Danforth states that women should drink plenty of water, preferably from six to eight glasses daily. Titus and others suggest the use of cooked fruits, such as baked apple, applesauce, stewed prunes, stewed pears, etc., for breakfast. In some parts of the country they are using colonic irrigations with good results. For my own practice I have found Fleets Phospho Soda not only corrects constipation but often aids digestion. I give from two to three teaspoonfuls three times daily. We would welcome any suggestions for a satisfactory treatment for this condition.

PAINS IN THE TUBO-OVARIAN REGION

This pain is more common in the second or third trimester and also may be due to increased tension on the round ligaments or possibly venous congestion of the ovarian plexus. We have found this complaint on several occasions directly associated to intercourse during pregnancy. However the pain may follow the sudden lifting of a small child or moving a heavy object. We have found the best treatment to be heat, (hot water bottle) to the tubo ovarian region, elevation of the foot of the bed for a few days and an abdominal support while the patient is in the erect position. We must not overlook cervicitis as a possible cause of these pains and the cervix should be carefully inspected.

NAUSEA AND VOMITING

I will not speak at any length on this condition as there has already been much written on this subject. I do wish to add however that nausea and vomiting in the last trimester may be significant of a serious complication, and should be studied carefully as to the cause. Suprenal gland, Cortalex tablets (Upjohn) have been used recently with marked success. From one to two tablets three times daily is usually sufficient. I have not had a great deal of success with the use of other glandular products for this condition.

EDEMA OF THE LOWER EXTREMITIES

In the clinic this condition is very commonly seen during the last few weeks of pregnancy, and has not been a serious complication unless associated with the other symptoms of toxemia. Nixon, University of Hong Kong, states that pregnant women with edema mild, moderate or marked are preeclamptic even though the other signs and symptoms are not present. More than

90 per cent of pregnant women we see in the clinic have some swelling of the lower extremities during the last weeks of pregnancy and particularly is this true of primiparas. DeLee calls our attention to the fact that a patient's weight is the best test for decrease or increase of edema and also that we may have dry eclamptics and this type is the worst to handle. We have found that this swelling of the lower extremities will disappear in a few days if the patient is given from one-fourth to one-half teaspoonful of epsom salts in a glass of warm water before breakfast. The dose may be increased to one to two teaspoonsful in water three or four times a day if necessary. We advise these women to rest in the afternoon from two to four P.M. and believe this could be undertaken by a woman with a number of small children as an afternoon nap is also good for them.

Edema associated with one or more of the other symptoms of toxemia should be treated carefully particularly if there is a rapid weight increase and an objective continuation of the edema to the upper extremities and the face.

VARICOSE VEINS OF THE LOWER EXTREMITIES AND VAGINA

This complaint is far more common in the multiparous women and becomes more pronounced and often more painful with each succeeding pregnancy. We do not believe in the injection treatment during pregnancy as we have found the condition always improves after delivery. The varicosities if present, however, may become progressively more tender and painful until the latter months of pregnancy. We have found that advising the patient to sleep with the foot of the bed elevated until term will be of great help to them. We also advise the use of the previously described abdominal support and elastic bandages to the varicosed extremities if necessary.

TOOTHACHE

It has been our experience that filling and extraction may be performed up until the onset of labor without great danger to the patient. There is still some debate as to the usefulness of calcium for pyorrhea and decay of the teeth. Toverids and Mellanby consider a poor diet of the mother during pregnancy a predisposing factor in the development of rickets and dental caries in children. Tomato juice is a good source of Vitamin "C" and can be given instead of orange juice.

GASTRO INTESTINAL DISTURBANCES; HEARTBURN

Gastro intestinal disturbances and heartburn so often seen during pregnancy is probably due to the upper displacement of the pylorus of the stomach which in turn seems to interfere with the emptying so that hydrochloric acid collects in unusual amounts. These minor gastro intestinal disturbances may be one of the first signs of an impending toxemia. (Titus) Titus suggests a careful diet for these cases and with principally the reduction of salt, coffee, jams, jellies and condiments. In the clinic, heartburn has been relieved satisfactorily by the use of magnesium, magnesium carbonate blocks, a block of which may be carried in the purse and a bite taken occasionally. Many women prefer magnesium carbonate to the milk of magnesia tablets.

INSOMNIA

This complaint is more common in the last trimester and may be due to the discomfort caused by the growing fetus. A glass of warm milk at bedtime with ¾ grain luminal has given us the best results in the out patient department. I believe it most important that no large amount of food should be taken after three P. M.

NOCTURIA

This condition is usually due to pressure of the enlarging uterus on the urinary bladder and is more commonly complained of in the first and last trimester. This also is greatly relieved if the foot of the bed is elevated.

PURITUS VULVA

This complaint is not common but when it is seen it is most difficult to treat. It is most common in obese women. We have tried everything on the market, I believe, and our best treatment to date is soap and water and the application of Amertan ointment (Lilly) locally, and hot sitz baths. We have had many cases in the clinic where a specific cause could not be found. Some claim that x-ray will help these cases, but I have not had enough experience with x-ray to answer this. We know that in many women this condition disappears two to three weeks after delivery. At present we have not found any satisfactory treatment of puritus vulva.

Oculo-Glandular Tularemia*

J. FRANKLIN GORRELL, M.D.
TULSA, OKLAHOMA

Gentlemen, I have nothing new to offer you regarding tularemia, and the only reason I am presenting this paper at this time is the prevalence of a number of epidemics reported in our state, and I felt a short review to freshen our memories on this condition would not be amiss. I have seen two cases of tularemia in Tulsa and will give you a report on them later in this paper. I wish to apologize and tell you now that they are not as complete as they should be since both cases were charity and one was not able to go to the hospital. The other case was about two weeks old when first seen by me.

Oculo Tularemia of the eye — otherwise known as Paranauds conjunctivitis, was first described by Paranaud in 1889 and later was studied by Challion of France, Gifford, Berhoeff, Derby and Martin. This eye disease is an infection produced by the bacterium tularense, a micro-organism which is transmitted to man either by the bite of the infected insects, such as the wood-tick, or by direct contact with rabbits, wood rats, ground hogs or other rodents susceptible to the disease. In 1907 Dr. Martin of Phoenix, Arizona, reported an inflammatory condition of the conjunctiva accompanied by glandular involvement. It was noted that the disease occurred in those who hunted rabbits for food and it was thought to be in some way connected with the skinning of the rabbits. In 1911 a disease broke out in Utah, where it was known as deer-fly fever. In the same year McCoy and Chapin isolated the germ responsible for the disease. Mayne and Francis in 1919-1920 proved by laboratory tests that the causative factor in deer-fly fever was the bacterium tularense. In Idaho the disease known as tick-fever has also been proven to be tularemia. The name of this disease was derived from Tulare County, California, where following the investigations of McCoy and Chapin the bacillus was found among ground squirrels in that locality.

From the standpoint of ophthalmology we are more concerned with the oculo-glandular than with the general type of the disease. In cases of tularemia with ocular involvement there is marked edema of the conjunctiva which may also involve the lid border. There is also a pronounced photo-phobia, increased lacrimation and increased tenderness of the lids; muco-purilent discharge from the eye. The conjunctival lesions show large reddish, semi-transparent polypoid vegetations which are more marked on the upper lid. The glandular enlargement usually takes place simultaneously with the conjunctivitis. Sometimes this glandular enlargement precedes the conjunctivitis and involves the pre-auricular glands and at times the retro-maxillary, the sub-maxillary and cervical glands. It is claimed that about one-half of the cases the glands abscess.

The incubation period ranges between one and ten days, but usually about three or four days after exposure. The patient usually presents himself complaining of headache, chill, backache, fever and often nausea. The eyelids feel thick and may stick together due to the sero-mucoid discharge, this discharge later developing to free pus. About the same time, the lymph nodes, pre-auricular, sub-maxillary and lymph glands of the neck begin to swell and are painful on the same side. Examination of the lids at this time will show one or more small yellow discreet ulcers situated in the deep conjunctiva of the involved eye. Vail's description deserves repetition: "The contrast between the deep color of the conjunctiva and the brilliant golden color of the ulcers is as striking as a turkey-red dress with yellow polka dots." Usually the cornea is not involved but there is a marked photo-phobia, severe pain and marked lacrimation. There is no evidence that this disease is contagious but that it is transmitted by coming in contact with the infected animals. However, Weilbacher and Moss reported a case of man to man transmission by means of an accidental incision of the finger while doing an autopsy on a patient who had died of tularemia.

Diagnosis is usually easy where we have the clinical symptoms, history where a pati-

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ent has had definite contact with rabbits, ticks, etc. One must always suspect this condition when dealing with farmers, hunters, cooks and market handlers, especially so where you have such rapid glandular involvement and the following diagnostic aids should be at once employed:

(1) Intra-dermal skin tests of killed bacterium tularense. The skin tests are positive as early as the third day, whereas agglutinations are never positive before the second week. Any inflammatory response at the site of the injection is considered positive.
(2) Cultures.
(3) Guinea pig inoculations, subcutaneously. The animal usually dies in three to six days showing involvement of the liver and spleen.
(4) Agglutination test.

Hot or cold applications, whichever gives most relief, antiseptics, silver salts and sulfanilamide. In 1932 Foshay introduced an anti-serum treatment and it should be used. This serum is given intravenously as soon as possible after your diagnosis has been completed. Reports show that this serum is more useful if given early in the disease. I did not use the serum in the two cases I treated because as I stated before they were charity cases but I would certainly use it if the patient could afford it.

Case number 1: Patient R. L., male, age, twenty years. Well developed young man; family history negative. He gave a history of dressing rabbits about four days before trouble started, and was first seen in my office on September 18, 1932. He had been treated by two other physicians. One diagnosed the condition as conjunctivitis, the other as gonorrheal conjunctivitis. Examination showed lids markedly swollen, marked lesions of the upperlids, papular form. Considerable free discharge from the eyes; marked photo-phobia and severe headache. The temperature was 102 degrees, pulse 96 and left side of face was swollen, the pre-auricular gland and also sub-maxillary. I sent the patient to Morningside Hospital where they found urine examination negative and white blood count 13,750. Four days later Dr. Cronk opened the sub-maxillary gland and three or four days later opened the pre-auricular gland. The eye condition improved as the glands of the face and neck improved. The patient was in the hospital about ten days. The last examination was on November 5, 1932. Swelling was all gone and incisions healed, but there was still some granulation on upper lid.

Case number 2: B. J. W. male, eight years of age, well developed boy with family history negative. He gave a history of having helped dress rabbits one week before eye trouble and was first seen in my office on December 6, 1932. He had been treated by a general physician for about two weeks for the eye condition which the mother thought was pink-eye. She took him to her family physician and according to the history, the lids were swollen and free discharge from the left eye. The physician treated this eye but with no improvement and when he told the mother he did not know what was causing the trouble or did not think anyone else could tell her, she brought the child to my office. Examination showed at this time a marked swelling of the lids, macular and papular lesions on upper lid; some edema of the Bulbar conjunctiva, free discharge from eye and marked photo-phobia. Temperature 100 degrees, pulse 84. There was marked swelling in the pre-auricular gland on the affected side. No sub-maxillary swelling. Treatment used—antiseptic solution to eye, heat to eye and potassium iodides internally. Patient examined last on January 11, 1933, swelling gone, conjunctiva practically cleared up and glandular involvement subsided.

BIBLIOGRAPHY

1. Cramer, I. I.: Oculo-glandular Tularemia.
2. Huey, T. F.: Tularemia of the Eye.
3. Moulton, E. C: Oculo-glandular Tularemia.
4. Francis, E.: Symptoms in diagnosis and Pathology of the Tularemias.

Management of a Few Urological Conditions*

M. H. NEWMAN, M.D.
SHATTUCK, OKLAHOMA

The following will be only a recapitulation of many recent articles which I have read since writing this paper, but being of prime importance to all of us, cannot be an overly discussed subject.

I am including in this discussion management of both specific infections, particularly gonorrheal infections and non-specific infec-

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tions of the urogenital tract, with exception of tuberculosis.

In the treatment and medical management of pyogenic infections of the upper urinary tract, that is, urinary infections above the bladder, we divide into two groups of lesions. One group which is associated with lower urinary tract obstruction, another, which is unassociated with lower urinary tract obstruction, however, may be associated with an obstruction of the upper urinary tract, although being macroscopically undiagnosable even by our more recent and superior methods of study of the urinary tract.

As to the types or forms of upper urinary tract infections, we have two, namely bacillary and coccal, it being very important that we know with which type we are dealing. Practically speaking, bacillary forms of infection are found in the presence of obstruction some place along the urinary tract, but frequently the bacillary form of infection may be superimposed upon an already existing coccal form of infection. Infections are either ascending or hematogenous in origin. Coccal infections are usually hematogenous in origin. Hematogenous infection or primary coccal infections, are frequently derived from some surface lesion, or another focus of infection such as the prostate, hemorrhoids, colon or more distant foci, the sinuses, teeth or tonsils.

The acute fulminating type of hematogenous infection usually calls for a nephrectomy. But in the other less acute types in which surgery may only be considered, the infection usually will be eradicated under proper medical management and our good friend time.

Depending on the individual susceptibility of each kidney, this type of infection will ultimately be localized as an abscess or multiple small abscess, with later development of a suppurating pyelonephritis. If the sequence of events be followed, we find a tendency toward absorption of some of this material with the coalescence of numerous small abscesses, with the ultimate formation of cortical abscesses, usually adjacent to the capsule and in conjunction with multiple infectious thrombosis, resulting in necrosis, and again the coalescence of these to form a definite renal carbuncle, which is a very definite entity both clinically and pathologically. The other complications being subcortical infections and perirenal infections which are the beginning of perirenal abscesses. The symptomatology of this type of infection depends entirely upon the susceptibility of the kidney toward the infection, associated with the individual immunity, and not always ending in the syndrome of an acute infection, but frequently only symptoms of a debilitating disease which remains too frequently undetermined until the terminal state has been reached.

In the acute ascending type of infection of the upper urinary tract, which as stated previously, is usually a bacillary infection, which presupposes an infection in the bladder or lower genital tract with or without obstruction. The symptoms of the acute onset; one will find chills, fever, headache, gastro-intestinal upset, with nausea and vomiting, and if the infection be of bacillary origin alone, one may find the sickest individual you ever witnessed and one who is not in danger. This type of infection is usually classified as acute pyelonephritis, following which, one of three things will happen: the inflammation will gradually subside, regardless of the type of bacteria, bacillary or coccal; you will get some surgical complication simulating those of hematogenous origin; or the most common thing which is chronic pyelonephritis.

The source of the infections of the bladder are likewise of the same types of bacteria. Too frequently the infections of the bladder are complications from overdistention of the bladder following operative procedures, which if properly cared for at the time of the operative procedure would prevent many unfortunate individuals from the discomfort of the bladder infection necessitating weeks and sometimes months to correct. No post operative patient should be allowed to go more than eight hours without emptying bladder, and if so, the patient will frequently get a bladder infection.

The ultimate object of the treatment of bladder and upper urinary tract infections, is the sterilization of the urine.

The principles of treatment of bladder and upper urinary tract infections rely mainly on the relief of any obstruction of the urinary tract, as it should be remembered that urinary tract infections can rarely be controlled satisfactorily in the presence of obstruction at any point. Thus, obstructions, whether it be of the ureter, or at the outlet of the renal pelvis, or the bladder neck, interdicts entirely the chance of sterilizing the urine. Thus, obstruction, or the possibility, of obstruction must be known and dealt with to reach the ultimate object, that of sterilization of the urine.

It is not our purpose in this paper to outline or discuss the entire range for relief of obstruction of the urinary tract, and from this point we assume the obstruction, if present, has been or will be dealt with, and thus we review certain principles of treatment.

Until recent years, our only and most specific procedures in eradicating any type of infection of the urinary tract depended on the use of urinary antiseptics, the maxi-

mum benefit obtained from the use of same depending on the acidification of urine to a ph of 5.5 or less, whether it be with the formaldehyde containing drug or mandelic acid (hexamethylene group).

Generally speaking, antiseptics and acidification are much less satisfactory for infections due to coccal forms, either staphylococci or streptococci, and perhaps more frequently than we realized, in spite of a pure culture, we are combating a mixed type of infection, which occasionally results in complicated coccal infections following any type of urinary tract surgery. The coccal type of infection frequently responds to small doses of neoarsphenamine. One form of bacteria in particular was very difficult to eradicate, namely, proteus bacillus, due to inability to obtain an acid urine in the presence of the B proteus, as the outstanding properity of the proteus is to split urea, and thus produce highly alkaline urine, resulting in the failure of the action of the antiseptics. As you have noticed, have purposely used past tense.

Thus, along with the present day trend toward the streamlining of all types of machinery, trains, furniture, ships, and in fact all material things, science is leaving nothing undone, therefore the urologist from a medical standpoint, has been streamlined and has been able to discard the so-called "Pill-bag," containing its various urinary antiseptics and acidifiers, and is now placed out in society, a carefree fellow, well groomed and well mannered, facing the world with a smile, knowing full well he has concealed in one pocket, one hundred sulfanilamide, in another pocket a like number of sulfapyridine, and "on the hip" a box of bicarbonate soda, and he is amply prepared to combat the increasingly recognized urinary infections.

We will not discuss the modis opperandi of the sulfanilamide group. To date, we have found sulfanilamide to be our mainstay in treatment of urinary tract infections, being effective against all bacteria found in the urinary tract except streptococcus fecalis, and having the advantage of being effectively bactericidal in urine of any ph and coincidentally useful in acute renal damage where the only urine excreted is alkaline. For eradication of streptococcus fecalis infection, mandelic acid with the proper maintenance of ph of urine to a level below 5.5 is most effective. This is obtained by the limitation of the fluid intake to two pints per twenty-four hours, plus ammonium mandilate (20 to 40 gr., or 1.5 to 3 gram, 3 to 4 times a day) plus ketogenic acid ash diet.

The dosage of sulfanilamide is still not standardized. The majority of clinicians recommend large doses for the first twenty-four hours, and then a daily maintenance dose which is much smaller. Those who have access to laboratory, may accurately determine the sulfanilamide urine concentration, as it has been found where sulfanilamide urine concentration reaches 100 to 200 mg., percent, the drug is bactericidal.

Sulfanilamide, being a toxic drug, although almost a panacea for urinary tract infection, must be given continuously, with close supervision of patient while drug is being used. Those who are more blood-minded than some of us require a leukocyte count at least every other day for observation of any diminution of same, and this is possible when patient is institutionalized, but the patient being ambulatory and less frequent visits to one's office, a checkup may safely be done at less frequent intervals. Observation leads one to the conclusion that those who are confined either in the hospital or home, respond much better to treatment with sulfanilamide than those who are ambulatory.

The toxic effect of sulfanilamide may be reviewed as observed, are nausea, restlessness, insomnia, cyanosis, headache, loss of appetite and skin reactions, varying from a mild erthema to a diffuse urticarial like rash.

Coincidentally, we might state here a tendency to familial susceptibility toward toxic or allergic reactions which have been observed recently in four instances.

In these observations, their relationships were either that of brother and sister, father and daughter, or brother and brother. The toxic reaction in all cases appeared characteristically familial, for example; one brother had severe headaches associated with a prolific urticarial reaction, and the other brother also had same type of reaction, necessitating discontinuing the use of the drug, although neither knew the other's experience with the drug; in another instance, father and daughter had severe headaches, nausea and vomiting irrational state and when patient was seen was in a semi-comatose condition, and with only small doses of the drug, the reaction being similar to that found in any other drug sensitively. Sulfanilamide could be discussed by each of us indefinitely, but the above is only a few outstanding features of the drug.

The use of sulfapyridine in infections of the bladder and upper urinary tract, have not been found to be superior to the sulfanilamide and is far more expensive.

Treatment of lower urinary tract infection will be confined to a short discussion in the treatment of gonorrheal infection, particularly those which fail to respond to the other methods of treatment. That is, the use of sulfapyridine in gonorrheal infections. Will state again we have no cure-all, but

in many cases in which the urinary antiseptics, sulfanilamide, irrigations, or a combination of all have failed, this drug will frequently give surprising results.

The cases treated, includes only the cases with but mild complications, the extent of the disease varying from anterior urethritis to a posterior urethritis, with a few having a mild prostatitis. The duration of the disease in the cases varies, from 6 hours (initial symptom) to 4 months, all types of treatment, some being ambulatory, others being confined to the bed for a period of time. Only three females being treated in the group. All cases had urethral discharges.

During the short time it will be impossible to give detail of each individual case. However, I am giving summary of the method of treatment used and am convinced that this drug has a definite place in the treatment of gonorrhea.

The routine followed was this: The patient received one tablet (7½ gr.) every three hours for six doses each day, followed with an equal amount of sodium bicarbonate, or a total of 45 grains (3gms) each day of the sulfapyridine. In conjunction with this, the patient used urethral irrigation of mild silver solution (usually 5% neo silvol) night and morning. In a few cases it was necessary to massage the periurethral glands or Littre's glands gently over a urethral sound.

In approximately five to 7 days following the beginning of the use of the drug, the urethral discharge has ceased, and consequently the smear for the invading organism was negative. Frequently the discharge will cease after twenty-four hours. The drug is continued five to eight days following the disappearance of discharge.

Within the last week, had two cases which were strongly suspected and observed by patients only one or three hours previous to beginning of treatment, at which time a positive smear was found on both. The marital state of the individuals was such that slightly more drastic methods were used in treatment. These individuals were placed on a liquid diet, consisting of tomato juice, friut juices, plus 15 gr., of sulfapyridine every three hours followed by a large quantity of water containing citrocarbonate. Within sixteen hours there was no evidence of the infection and observation each day has revealed no reccurrence. If positive smear had not been obtained, I would be hard to convince that they had ever had the disease. I can account for the rapid eradication, as a result of large quantities of fluids with sufficient sulfapyridine urinary concentration the bug not having time to imbed itself in the mucosa.

From the above, one might be led to believe the drug is only used in those cases which have failed to respond to other forms of treatment, which is not the case, as this drug may be used as frequently as the sulfanilamide in the early case. Being used in the smaller doses than when being used in the treatment of pneumonia probably accounts for the fewer toxic symptoms, usually mild. Of course in addition to the use of the drug, the usual restrictions given are advised, that is, refraining from use of alcohol, avoiding sexual excitement, etc. It is almost an established fact, both in the use of sulfanilamide and sulfapyridine, if no response in ten days to two weeks, ample consecutive treatment, some other method of treatment should be resumed and if this fails, again return to the use of one of the sulfanilamide group medications.

In conclusion, sulfanilamide in proper dosage has been found to eradicate all types of bacterial infections of the urinary tract with the exception of streptococcus fecalis, which respond to mandelic acid treatment. The ultimate object of treatment of the bladder and upper urinary tract and infection, is relief of all obstructions of the urinary tract and sterilization of the urine, the principles depending on the above.

Recommendations in Routine Anesthesia Procedure*

HARRY B. STEWART, M.D.
TULSA, OKLAHOMA

The presentation of certain recommendations in anesthetic procedures would have been a very simple and brief affair only fifteen or twenty years ago. The number of anesthetic agents available and the meager knowledge concerning them would have limited such a discussion to a few basic facts relating to their administration. Today our armementarium includes such a variety of basal and general anesthetic agents that the subject has become a very large one. The truth of the matter is that the field of anes-

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thesia has almost passed out of the hands of the general medical man and into the control of physicians who spend no little time in preparing themselves for this highly specialized branch of medical practice.

There was a time in the memory of most of you when the field was so narrow that the trained technician or nurse could satisfactorily render the few agents which were considered safe anesthetics. Then, too, a few physicians in various localities by reason of their special interest in anesthesia did very creditable work. Those of us who have been scientifically trained in this special field often wonder why there have not been more physicians interested in this highly important specialty in the past two decades. It was this apathy which brought about the introduction of the technician to the exclusion of the physician. The reverse is now in order and it behooves the medical profession as a whole to encourage the movement and equip themselves to surpass in efficiency the nonmedical anesthetist. So many of the agents we use these days involve a technique which the nurse cannot legally or otherwise employ.

Good anesthesia involves so much more than actual rendition of the anesthetic. The physician chosen to give an anesthetic, whether he be a trained anesthetist or not, becomes a part of the medical and surgical team as soon as the operation becomes a certainty. He is consulted concerning the condition of the patient, the ability of the surgeon to work under various conditions and anesthetic agents, the tolerance of the patient for specific agents and also his own adeptness in the administration of some chosen technique. He is apprised of certain pertinent facts about the patient in relation to his operative procedure. He learns whether the patient is a good, moderate or bad surgical risk. The anesthetist always informs himself relative to any major physical or mental handicap which his patient may have. Idiosyncrasies and abnormal laboratory findings are other important things he wants to know because they materially influence him in his selection of an anesthetic agent for a specific case.

As a trained anesthetist I feel that the only part of an anesthetic procedure which should be routine is the actual technique involved in the administration of agents or combinations of anesthetic agents. Surely there is no such thing as a routine anesthetic suitable for all patients for any surgical operation. Every anesthetist and every surgeon has a preference for a certain kind of anesthetic for a specific surgical procedure. This preference, however, should not be made universally routine but rather should fit the patient under consideration. There are so many indications and so many contraindications that no cut and dried anesthetic regime can be followed any more than a prearranged surgical technique can always be adhered to.

The first recommendation of a specific nature which appears to me important enough to speak of is the matter of discussing the type of anesthetic with the patient. After many years of experience I must tell you that I think this is a sad mistake and a matter of poor judgment on the part of the anesthetist. This is one place where the old physician who knew the art of the practice of medicine had an advantage over the modern younger physician in that he never talked too much. An anesthetist who voluntarily brings up a discussion of the kind of anesthetic to be used with the patient is surely talking out of school and many times is merely heaping trouble upon his shoulders. About the only impression the average patient receives from a scientific discussion of the anesthetic in advance is that you are trying to force some particular anesthetic upon him. If you leave the matter up to the patient or his wife you create the impression that you are asking them to make a decision of which they are incapable. I see no reason whatsoever to ever approach this subject unless the patient brings it up himself. If you are firm when you tell him what you propose to use or merely tell him you will use the anesthetic best suited for his case he will not discuss the matter any further but leave it to you. If he has any preference he will never forget nor neglect to relay that to you. Should his selection be contrary to your choice or what you know to be best for him you should insist upon having your way because you are assuming the responsibility and you know best what agent or technique is superior in his case. You will usually find the prejudice he may have for any certain anesthetic is based on heresay and not personal knowledge. He can usually be divorced from this misapprehension.

Another important point in the selection of an anesthetic is not to be too dogmatic and force some procedure upon a patient against his wish. If by firm argument or persuasion you cannot make him agreeable, then it is better to alter your ideas enough to prevent antagonizing him. Fear is a real complication preceding induction of an anesthetic and hence it is advised not to disregard it. Should any unforeseen complication or sequelae develop which could be blamed upon the anesthetic the anesthetist will surely be the recipient of such blame if he isn't diplomatic enough to settle his difference of opinion amicably before the operation. Assurance that you know your business and that he is interfering with his own

welfare are points in the way of persuasion. Coaxing to the point of breaking down an inherent fear is bad phychology and often will end in your own disappointment.

We now have many sedatives in the form of barbituric acid preparations which deserve no small amount of praise and recommendation in preoperative preparation. Amytol, nembutal, seconal, barital, veronal and luminol are the important drugs in this group. These agents in the usual therapeutic dosage do not depress the heart and respiration to any appreciable degree. They produce a natural sleep and thereby allay anxiety and apprehension. They are antagonists to novocaine and related drugs and thereby produce a limited amount of analeptic action upon large doses of local or spinal anesthetics. These barbiturates have a synergistic action with morphine and thereby further enhance the preoperative sedation. It is highly recommended to insure a decent night's sleep before surgery. Three grains of any one of these compounds usually will give the desired effect and give the patient proper background for his immediate preoperative preparation.

I feel some mention should be made of the time-honored habit of many physicians, usually surgeons, in ordering morphine grains one-fourth and atropine grains one one-hundred and fiftieth to the average adult one hour before operative time. Many times this is done thoughtlessly, principally because from the time they were interns in some charity hospital they had been brought up on that kind of a preoperative diet. There isn't any more common sense in ordering that combination routinely than in giving ether routinely to all patients. The combination of morphine and scopolamine or hyoscine is far superior in producing adequate sedation. If you think you must have atropine for its stimulation of the vagus and so forth you can give it in the same hypodermic without interfering. The morning of operation it is thought best to give one or two capsules of a barbiturate about two hours or more in advance of operating time. Then your hypodermatic should be given not less than one hour before surgery. Morphine has its maximum sedative effect in about one and one-half hours after administration. The very old and the very young do not receive hyoscine or scopolamine. This premedication is given for a definite purpose — namely, to lower the metabolic rate, depress the cerebrum and its apprehension and to assist in general in the relaxation of the patient mentally and physically. I contend that your preoperative medication should be ordered after you have seen and studied your patient and after you have decided upon the kind of anesthetic you probably will give. If you desire to produce an effect, why not give your sedatives with that in mind and eliminate many of your troubles before the patient is brought to the operating room. Most of the patients prepared in this way can carry on a conversation but have no fear and little or no memory of being taken to surgery. I believe this a distinct advantage and you owe it to your patient. He will appreciate it.

Intravenous preparations of the barbiturates such as evipal or pentothol sodium have a very definite place in modern anesthesia. They are not difficult to administer and will give excellent results if you understand and are prepared for the few difficulties which may arise during administration. An open and free airway must be maintained at all times. Vomiting may occur and this should be anticipated. Some cyanosis or true anoxemia should be treated with oxygen therapy. This intravenous anesthesia is very convenient in those apprehensive patients who just all but demand that they be asleep before leaving their room. It is also a nice introduction to a general inhalation anesthetic. It is excellent for work about the face where it is advantageous to keep out of the way of the operator or where a cautery is anticipated. It is used by some for the introduction of endotracheal tubes as airways but that lies with those who are not afraid of laryngospasm and some embarrassment before it can be relieved.

I feel that intravenous anesthesia can be safely used for most any procedure of short or moderate length but is particularly indicated in emergency cases who may have a a full stomach, for work about the head and for painful manipulations or dressings. It is very convenient for removal of fracture cases from their room to the surgical ampitheatre. Administered in two and one-half percent solution it is less liable to cause complications during administration. However, given in five or ten per cent strength, it is very satisfactory.

Avertin is a valuable basal agent which should be used only by those who are professional anesthetists and who understand its shortcomings and danger points. In doses of eighty milligrams per kilogram of body weight when supplemented by some inhalation agent it affords considerable help in the matter of relaxation. Avertin is another agent that is always pleasing to the patient because it produces unconsciousness in the room and varying amounts of sleep postoperatively. Because it is an alcohol and is detoxified by the liver it is never recommended in border line cases with possible liver insufficiency. It is not adaptable to the aged or poor risk patient because of slow and faulty elimination. It does reduce the

amount of inhalation agent used and has some virtue in that respect. Caution should be sounded by the professional anesthetist and to the surgeon lest the poor risk patient persuade him to use avertin.

Ether properly given, either as the sole agent or supplemental to some gaseous agent is highly recommended for the occasional anesthetist or one who is not familiar with the more highly specialized procedures. It has a wide margin of safety and has served well for almost a hundred years now. Many of the bad effects of ether may be attributed to faulty technique in its administration and to lack of supportive procedures which we now use before, during and after all anesthetics. Hygiene, drug therapy, fluids, tracheal catherization and the like reduce the postoperative sequelae to a minimum. I feel that ether is the best anesthetic for children. For those who use modern gas machines for inhalation work I can highly recommend the use of divinyl ether as an adjunct to the gases when deep relaxation is necessary. Divinyl ether is a comparatively new product and is not to be confused with ordinary di-ethyl ether which we ordinarily refer to as anesthetic ether. It is potent in a closed circuit and has a quick recovery period without much of any nausea or vomiting. It is not without danger for the less experienced.

Cyclopropane is the anesthetic of choice where general narcosis is desired. It is meant only for the experienced as it is potent in mild amounts and has some complicating factors which require experience. It is highly explosive in certain proportions. It may produce cardiac irregularities and therefore is contraindicated in conductive heart disease. It is used in high concentrations of oxygen and therefore has a very wide field of use where such things as nitrous oxide and ethylene would not do.

Nitrous oxide for short cases not requiring much relaxation is highly recommended. It does not constitute an explosive hazard. I do not recommend it in the hands of the novice nor do I feel it should be crowded so to speak, to produce profound narcosis with the idea of obtaining deep relaxation.

It would be a grave mistake, to my way of thinking, to conclude a discussion of anesthetic agents without mentioning the most dramatic and useful technique the anesthetist has in his power—spinal anesthesia. I feel that when one employs it sufficiently to use it with wisdom it constitutes the finest anesthetic for abdominal surgery we have. It is not recommended as any routine measure because, as I have said before, there is no such thing in good anesthesia or surgery. Most of the bad results quoted by apprehensive patients are pure unadulterated myths. They have no foundation or scientific proof. In communities where spinal anesthesia has been used extensively there is scarcely any idle talk concerning its bad results as interpreted by the layman. Like any other procedure I have ever known in medicine, this form of anesthesia is not without its limitations and the more an anesthetist uses it the better he knows those and the more proficient he becomes with it. Novocaine, the agent most commonly used, is only slightly toxic even in large amounts. It probably has the lowest percentage of failure to produce the desired results of any of the techniques the modern anesthetist uses.

Beside the relief of pain the principal effect we try to produce in giving an anesthetic is muscular relaxation. There is no single agent or combination of agents which produce the extreme degree of relaxation that does spinal. A contracted and quiet intestine is also very advantageous and almost as important. There is no other anesthetic which will produce this ideal condition. Relaxation and a contracted intestine produce a quiet abdomen which surely facilitates surgical procedure. It is impossible to compare the operative and post operative results produced by spinal anesthesia with any other technique. Difficult pelvic and upper abdominal operations are made comparatively easy.

Surely it is reasonable to assume that these benefits to the surgeon and the anesthetist are passed on to the patient in the matter of a more rapid convalescence, a less stormy postoperative recovery and fewer sequelae and complications. I never could understand why those who condescend to use spinal anesthesia for their poor risks do not by the same reasoning deduct that it might be good for their standard risk patients.

I feel that the acute abdominal emergency is one place where it is probably most valuable. Here the patient is scarcely ever prepared, has muscular rigidity difficult to abolish and has some condition either inflammatory or bordering on it where inhalation agents are least apt to make conditions ideal for surgery.

In those cases where more time is required than novocaine ordinarily affords, the use of pontocaine solution with glucose or mixed with novocaine is recommended. The use of a hypo-baric solution of nupercaine offers a highly satisfactory result where you expect to need even more time.

Two or more hours of surgery can very satisfactorily be done with this technique. Those who are not familiar with the procedure should acquaint yourselves with it because it will solve your problem and eliminate dangerous supplementation by some inhalation agent.

Heavy preliminary sedation is important in all spinal technique. The use of ephedrine almost routinely is important. Neosynephrine instead of ephedrine gives you a rise in blood pressure of more lasting proportions and with a slowing of the pulse instead of the usual increase. In transurethral prostatic resections and rectal work the use of one hundred milligrams of novocaine or one cubic centimeter of pontocaine solution both combined with two or three cubic centimeters of a ten per cent glucose solution will give you a controlled low anesthesia which diffuses very little to higher levels. It is superior to caudal or caudal and sacral anesthesia combined in its results and ease of administration.

This covers most of the anesthesia problems which confront the anesthetist. There has been no attempt to describe the details of various techniques employed in some of these procedures because a general group such as this is not particularly interested in that phase of the discussion.

I should like to encourage more and continued interest in good up-to-date anesthesia among the anesthetists, the surgeons and the physicians doing varying amounts of anesthesia in their respective communities. I think that in all fairness to those doing surgery and to the patients in particular, those of you who daily do some anesthesia owe it to all concerned to make use of all the agents and variations in technique at your disposal. You should periodically get some instruction and help in any of the newer drugs or procedures so that you may be a credit to the specialty. It is in this way that you advance the practice of medicine, the specialty of anesthesia and keep within the medical profession those things such as anesthesia which belong to doctors. The more interest you display and the more adept you become the greater will be the service to your patient; which after all is our chief reason for being doctors.

The Management of Minor Anal Pathology*

CURTICE ROSSER, M.D., F.A.C.S.
Professor of Proctology, Baylor University Department of Medicine.
DALLAS, TEXAS

From time immemorial surgical literature has recorded innumerable variations of two fundamental themes—amputation and drainage. A new hemostatic, a modified technique to facilitate removal of an organ or evacuation of pathogenic material—each serves today, as it has in the past, as a basis for a new contribution to medical literature.

Because surgical procedures present a somewhat rhythmical reiteration of previous stages of opinion and because examination of the written records of the past indicate that fundamental surgical principles did not germinate spontaneously but were slowly evolved as the centuries came and went, the fallacy of any attempt to present a completely novel idea becomes apparent to each of us who prepares to address any scientific body.

This seems to be especially true in the field of proctology. Rectal examinations were made by the Egyptians several hundred years B. C. The bivalve speculum was in use in Pompeii. Hippocrates, born in the Island of Cos 460 years before Christ, left descriptions of fistula and hemorrhoids and instructions concerning their treatment which would not be entirely out of place in a text book of today. Aurelius Cornelius Celus wrote his "De Medicina" during the reign of Tiberius 400 years later, and in his writings accurately described colitis, the dysenteries, the use of the scalpel in fistula and included a warning concerning the difficulty and danger of opening a fistula with a high internal opening which still remains pertinent. No startling discovery will be reported here —but an attempt will be made to evaluate the various methods of treatment available in the various stages of several of the common diseases of the anal canal.

The anal canal is the terminal portion of the lower bowel which forms an angle with the rectum, is uniformly constricted by the sphincter muscles and the levator ani muscles and is the site of all the commonly observed ano-rectal diseases. It is divided in its mid-portion by the dentate (pectinate) line from which project tiny sensitive skin-covered papillae, lying under which at intervals are a group of small open crypts. The proximal or rectal portion of the canal is lined by delicate columnar-celled mucosa, circumscribed by the internal spincter and

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levator muscles, innervated chiefly by sympathetic nerves and drained by lymph chains leading to the rectorecal and intra-abdominal glands. The distal portion of the canal, usually termed the anal orifice or anus, is originally an ectodermal structure; is lined with squamous epithelium, encircled by the external sphincter muscle, innervated chiefly by cerebro-spinal sensory nerves and drained by lymphatics leading to the groin.

The four common anal entities—hemorrhoids, ulcer, fistula and pruritus—are progressive lesions; each will be observed to pass through three stages to reach pathologic maturity.

The type of treatment indicated for each of these diseases of the anal canal should properly vary with its stage of development and it is my feeling that much of the difference of opinion among orthodox proctologists on the subject of conservative as opposed to radical surgery can be clarified and reconciled by a careful analysis of the various stages of development which occur in each of the lesions under observation.

Anal Ulcer is a non-specific loss of continuity of anal integument with accompanying infection and hypertrophy of adjacent tissues. Such an anal ulcer is the final stage of a syndrome, which originates as an abrasion and in an intermediate phase was a fissure-in-ano.

Pruritus Ani is a neuro-epithelial dermititis located in the anus and perianal skin, produced by the continued presence of an irritating moisture to which the individual has become locally allergic. Pruritus can be demonstrated grossly and microscopically to pass through three different stages, each of which requires different management.

Anal Fistula is the final stage of a progressive syndrome, having its origin in an infection of one of the anal crypts which later burrows to the perianal or sub-mucous spaces to form a localized purulent deposit (abscess) eventuating in fistula.

Hemorrhoids (or piles) are varicose tumors lying in the anal canal with a tendency to prolapse from the anal orifice and to bleed. They are subdivided into external and internal varieties and neither of these is stationary but tends to pass constantly from one phase of tissue involvement to another.

The management of the first three conditions will be outlined specifically.

NON-SPECIFIC ANAL ULCER

Perianal Abrasions: As a result of tight or rough clothing, horseback riding, excessive perspiration or poor local hygiene, the perianal skin, particularly over the anterior raphe extending from the margin of the anus to the perianal body, often becomes chafed and sensitive. Abrasions are common findings in the leathery wet skin of puritus ani and traces of blood may appear on the toilet paper as a result. Individuals with normal anal outlets but with a tendency to pass very large dry stools are often subject to cracking of the marginal skin, usually at several areas simultaneously.

It is important that minor lesions of this nature shall not be confused with true fissure-in-ano. Relief is usually prompt if the patient is instructed to keep the perianal skin clean and dry, zinc stearate powder rubbed on several times daily being helpful to maintain proper absence of moisture. The lesions may be painted with a mild antiseptic or with compound tincture of benzoin if they give pain or cause itching. Ointments are inadvisable because of their tendency to further macerate the epithelium. The water intake may be increased if the stools are hard and dry.

First Stage—Abrasions of the Anus: As a result of a congenitally small anal orifice, from the traumatism of a very large stool or a stool containing a foreign body, or as a complication of internal prolapsed hemorrhoids, a narrow clean separation of tissue may be observed in either the posterior or anterior commissures or both. This abrasion produces slight stinging pain and occasionally a drop of blood on the toilet paper. The treatment indicated is the application of a surface anesthetic, preferably 10% metycaine and instruction to the patient to take a daily intestinal lubricant. It is important that silver nitrate not be applied to the abrasion as this often results in transforming it into a chronic fissure.

Second Stage—Fissure-in-Ano: This is a single chronic linear separation of tissue with slight infection, situated in either the posterior or anterior commissure of the anal orifice. It is usually a sequella of the abrasion described. The anatomical arrangement of the encircling exterior sphincter muscles at the two commissures is the best explanation of the predeliction of the fissure for this point. The deeper fibres of the sphincter from their origin in the coccyx divide into fleshy lateral bundles which decussate at the anterior commissure to insert in the perineal body. The circular superficial fibers (or orbicular sphincter) lie just underneath the integument. The posterior commissure, it will be seen, has poor protection and tearing is most likely to occur here, least apt to occur on either side of the anus where the sphincters are smooth and snug. The presenting symptoms of *fissure in ano* are pain, sharp in character, following the stool, a small amount of blood on the toilet paper, constipation, increased nervousness and frequently referred discomfort in the back and lower limbs. The lesion described may frequently

be cured by the injection treatment first suggested by A. B. Graham and, where definite stenosis is not marked, this therapy is indicated. It is given as follows: the perianal skin is cleansed and an antiseptic is applied—from 5 to 10 drops of 5% quinine urea hydrochloride are then injected through the marginal skin 1/16 of an inch behind the fissure, the medicament being distributed from a point well above the lesion to just beneath the epidermis. A small glass syringe with a short 25 gauge needle is used and the injection must be done quickly as it is quite painful for a brief period. One-half per cent Diothane or one of the other long-duration anesthetics now available may be substituted for the quinine urea. This treatment is followed by gentle dilitations over a period of several weeks.

Third Stage—Non-Specific Ulcer: This is a single chronic ulcer situated just inside the anal verge, usually in the posterior commissure but occasionally in the anterior commissure. Double ulcers occur so infrequently as to suggest that the lesion is specific when multiplicity is observed.

The ulcer is the end stage of fissure-in-ano. The lesion has become oval with undermined edges and a superficial purulent film is seen. In this stage the adjacent tissues hypertrophy, and because of this a triad of lesions will be found in advanced cases: the sentinel pile on the anal verge, an enlarged fibrotic papilla at the nearest point on the dentate line, with the ulcer between. The story, copied from one text book to another for unnumbered years, that the sentinel pile is the remains of a crypt and papilla torn from its usual location can, of course, be easily disproved by finding these structures in their proper place on the dentate line.

The symptoms of anal ulcer are pain, not only following the stool but prolonged over a period of hours, an occasional show of blood on the toilet paper, contraction of the anal outlet and frequently slight purulent drainage. If the onset of pain is delayed until 30 minutes after defecation, it is probable that the ulcer will be found to be near the dentate line.

The differential diagnosis must include anal chancroid and chancre, anal tuberculosis, perianal abrasions and subcutaneous fistula. Chancroid is a multiple, spreading lesion, much more painful than fissure. It is usually seen in both commissures simultaneously because of the tendency to autoinoculation. Vaginal lesions may be present. Chancre is a single slightly painful lesion usually outside the anal orifice.

Anal tuberculosis is a larger deeper lesion and is usually painless.

Perianal abrasions are multiple and associated with evidence of skin irritation; cracking of the marginal skin is multiple, found in an anus of normal caliber with a history of passage of large stools and yields ready to simple measures.

TREATMENT OF ULCER

When the ulcer is well defined and calloused; when a large sentinel pile or papilla is present; when combined with hemorrhoids or when anal abscess impends, the pathology present is best completely removed surgically with wide drainage. Separation of the two posterior columns of the external sphincter muscle to permanently relax the orifice is usually wise. Crude divulsion of the anal muscles under general anesthesia has fortunately lost much of a popularity based largely on ease of performance rather than upon surgical logic.

PRURITUS ANI

Pruritus Ani is a chronic neuro-epithelial disease; a dermititis and neuritis of the perianal and anal skin and sensory nerves, produced by the continued presence of an irritating moisture to which the individual has become locally allergic and characterized by continued itching, thickening and superficial breaking of the epithelium and by an interrelated emotional reaction on the part of the patient.

Symptoms: Itching is the predominant symptom. It is present after bowel movements and following exercise but always more marked at night. Local burning and stinging are transitory when present. Mental stress emphasizes the itching.

Etiology: All manner of explanations have been given for this very puzzling syndrome and no doubt various individual cases are explained by different agencies. Pelvic reflexes, food, alcohol or tobacco allergy, potential diabetes, improper local hygiene, yeast infection and various specific bacteria are among etiologic factors which have been advanced as causative agents.

My own opinion is that pruritus ani is the direct result of the continued seepage of some moisture on the perianal tissues to which the individual has finally become sensitive. This moisture may be the mucorrhea produced by an old case of prolapsing hemorrhoids; it may be from a draining sinus or chronic ulcer; it may be due to a lack of local ventilation in a stout individual. As a rule, however, a definite lack of tone will be observed in the sphincter muscles in individuals with marked pruritus and it is my opinion that in the great majority of cases this over-relaxation, whether it be congenital or due to previous surgical divulsion or severance of the sphincter permits constant escape of intestinal secretions and is, therefore, the most conmmon cause of the neurodermititis.

Pathology and Stages of Development: Numerous observers, including Montague, Montgomery and Tucker and Hellwig, have reported that the pathologic changes in the skin will vary with the progressive development of the condition. In the *simple transitory* type, marked changes in the superficial skin are not present, but microscopic section will show an exudative inflammation with dilation of the lymphatics and blood vessels, perivascular infiltration of leucocytes and lymphocytes with acanthosis of the prickle-cell layer of the skin.

In *chronic pruritus*—the second stage—the skin is thick, grayish and resembles tissue which has been moist over a long period. Abrasions are present. Microscopically, epithelial hyperplasia with marked acanthosis of skin layers, especially the malphigian layer, and an increase in the amount of connective tissue is observed; the lymph vessels are dilated and lymphocytic infiltration is present.

In the final stage—*chronic pernicious pruritus ani*—the skin shows extensive lichenification with excoriations and local ulcers and fibrosis. Microscopically, there is atrophy of the epidermis, hair follicles and sebacious glands. A dense infiltrate of leucocytes, lymphocytes and serum is observed in the upper part of the cutis. Deep fissures and shallow ulcers are present from which there is a superficial invasion of bacteria.

Treatment According to Stage: Simple Transitory Pruritus: In this stage of the disease, the external skin changes are usually limited to a slightly angry appearance, with slight swelling and occasionally vesicle formation. Frequently no change can be observed. The most helpful measures for the correction of this condition are those designed to maintain a clean, dry, smooth perianal skin. The patient is instructed to avoid strong alkali soaps, to cleanse and dry the area carefully after bowel movement and in warm weather to apply a waterproof toilet powder several times daily.

Chronic Pruritus: Here the patient presents himself with a history of intermittent itching over a period of months or years, with a thick, gray, often moist skin. It is, of course, essential that any manifestation of dietetic irregularity or constitutional disease be investigated and corrected. If definite anal pathology—hemorrhoids, condylomata, ulcer, cryptitis or proctitis—is present, it would be unlikely that the pruritus could be alleviated before such lesions are eliminated. If abrasions are present, the entire area is painted daily with tincture of mercurochrome, followed with compound tincture of benzoin which is allowed to dry thoroughly, forming a protective surface. This is continued until all abrasions and lichenifications are cleared up. The patient is then advised to avoid any soap locally, to cleanse and dry the perianal skin after each bowel movement and at bed time with water and to use a lotion containing 35% alcohol and a mercurial antiseptic. The skin is again dried and zinc stearate powder rubbed in thoroughly.

Chronic Pernicious Pruritus: Where the measures outlined above are ineffective and in the pernicious stage of the disease, where marked infection and ulceration of the skin is present, more radical measures are indicated. Many chemicals have been advocated for subcutaneous injection for the relief of this condition, but alcohol has given so much better results in my hands that I much prefer it to any of the other agents and to skin-undercutting. The treatment is too painful, however, to be administered effectively in the office. The patient should be in a hospital and a block anesthesia given. Absolute alcohol may then be injected in small amounts over a wide area by the method of Harvey Stone or 40% alcohol may be injected in much larger amounts, following the directions of Buie. The latter technique unquestionably results in a larger percentage of permanent cures, but is, of course, much more disabling. While neither of these procedures is perfect from the standpoint of a cure in all cases, the injection of alcohol under the perianal skin is our most effective weapon in the management of pernicious pruritus.

ANAL FISTULA
(Cryptitus, Abscess, Fistula)

Anal fistula is the final stage of a pathological syndrome having its origin in an infection in one of the anal crypts which later burrows to the perianal, perirectal or submucous spaces to form a localized purulent deposit eventuating in fistula. This concept which has been emphasized chiefly by Dr. L. A. Buie of Rochester, Minnesota, is gaining general approval, although Mr. Earnest Miles and others feel that hematogenous and lymphatic infections in the perianal tissues are an occasional source.

CRYPTITIS is an infection of one or more of the small sinuses located on the dentate line about one-third of an inch above the anal orifice. The crypts are recesses lying behind the invaginating ectodermal lining of the lower anal canal and are usually found behind the tit-like projecting papillae.

The commonest *cause* of infection in a single crypt is retention of small bits of feces or small ingested foreign bodies in these sinuses, which open upward. Ordinarily the foreign body is discharged before examination, but I have removed two chicken bones, a grape seed and a bran flake from infected crypts which eventuated in fistulae.

A fish bone, a fish scale and a lock of hair are additional examples of foreign bodies found impacted in crypts. Trauma from very firm stools with slight tearing of the crypt edges and admission of infection to its tissues is also an etiologic agent.

Multiple cryptitis is more rare and is usually due to some infection (often gonorrhea in females) in the anal canal or lower rectum with implantation in these anal sinuses.

The *symptoms* are a dull aching pain in the anal canal combined with sphincter spasm and a sensation of local pressure.

When acute, the area can be found by the finger; when chronic, an anoscope must be introduced and the dentate line investigated with a crypt-hook.

The *treatment* consists of removing any foreign material, flushing the crypt with a mild antiseptic solution using a flexible irrigator bent to form a "shepherd's crook" and in the chronic stage, applying a weak silver nitrate solution to the interior to encourage obliteration of the cavity. Endoscopic visualization is necessary for these procedures.

If the crypt is deep, formation of an abscess may be avoided by passing a crypt hook into the sinus and under infiltration anesthesia excising the covering epithelial surface. The wound should be cleaned and painted with a mild antiseptic daily until it heals, the patient being instructed to flush the anal canal with an ounce of witch hazel after every bowel movement using a small all-rubber syringe.

ABSCESS. Due to extension from infected crypts in the anal canal and from anal or rectal ulcers, inflammatory areas may develop in the tissues adjacent to the anorectum. The organisms present are those found in the normal stool, the colon bacillus predominating. In perhaps 5% of cases the tubercle bacillus is found, always secondary to phthisis (Chisholm). The gonococcus is a possible agent in women.

The direction of spread of the original anal infection determines the type of abscess formed, a wide variety of locations occurring. The common types, however, are:

Submucous fistula is a frequent sequella of ing is discovered just beneath the mucosa of the upper anal canal and lower rectum, the patient's symptoms being a sensation of fullness and weight inside the bowel with mild throbbing pain.

It is quite important that submucosal abscess be differentiated from abscess lying completely outside the rectal wall as the treatment is diametrically different. Fluctuation, linear dimensions, and at times, the appearance of pus in the affected crypt on gentle pressure over the mass are differentiating points. On gentle pressure rupture may occur through the crypt from which the infection originated. Otherwise the mass should be well drained through an incision from the crypt upward, preferably made with the cautery. Because of the internal location and the possibility of hemorrhage, the patient should be in the hospital, and the drainage should be done under general or block anesthesia.

Submucous fistula is a frequent sequella of incompletely incised submucous abscesses.

Marginal: The mass is detected under the skin-lined portion of the anal canal burrowing from the dentate line outward to appear at the anal verge. Because of its location in the grasp of the external sphincter muscle, the patient's *symptoms* are constant severe localized pain and throbbing aggravated by stool, exercise or coughing. Diagnosis is made by palpating the small mass between the index finger inserted in the canal and the opposed thumb at the anal margin.

The *treatment* is early incision under diothane infiltration anesthesia. The finger is inserted in the anal canal and pressure made to render the abscess more prominent, an incision being made parallel to the anal margin. An additional incision may be made at right angles from the center of the first, outward (Pruitt). Packing is unnecessary except for hemorrhage. A hot sitz bath may be given after each bowel movement.

Ischiorectal: Abscesses in the fatty tissue of the ischiorectal fossa which lies lateral to the terminal rectum and anal canal comprise the great majority of cases seen. *Post-anal* and *ano-perineal* abscesses lying posterior and anterior to the anal canal respectively give similar symptoms except for location and the management is the same.

The *symptoms* are dull aching or severe throbbing in the region with elevation of temperature and discomfort on sitting. Because the abscess is not the result of hair follicle infection but a burrowing process from the anal canal at the level of the dentate line, the primary pus collection is an inch from the surface and definite localization on the part of the patient is difficult in early stages. For the same reason fluctuation is a late symptom and incision should never be delayed to this point, as fluctuating rectal abscesses have practically always entered the fistula stage through back pressure on the burrowing tract to the point of origin in the anal canal.

The *diagnosis* should be made in early stages before brawny induration, redness, swelling and superficial fluctuation makes it apparent to a lay observer. With one finger inside the anal canal opposed to the thumb on the surface a tense, tender, small mass can be detected adjacent to the anal canal in one or the other of the fossae. It is at

this stage that ischio-rectal abscesses should be evacuated if fistula is to be prevented.

The *treatment* is drainage. If the abscess is advanced to the stage of fluctuation, if both buttocks are involved, or if purulent drainage is seen escaping into the anal canal, it is often just as well to make only a small incision at the point of fluctuation, trimming the edges to eliminate the necessity for packing. This can be done under infiltration anesthesia or by freezing a small point with ethyl chloride, and this minor drainage is justified only as preparation for the radical operation for fiistula in ano to be performed in seven to ten days after the acute inflammatory process has subsided. The patient is instructed to take frequent hot sitz baths and to apply hot dressings. The cavity may be gently flushed with mild antiseptic or warm normal saline solution through a small irrigating tip daily.

If the abscess is detected at an earlier stage, a much more radical management is justified in the hope of forestalling completion of the fistulous process. Under general or block anesthesia the abscess is drained freely, a large area of normal fat and skin superficial to the cavity being removed to promote easy drainage, early granulation and to eliminate packing after the first twenty-four hours ("scalping" operation of Fansler). This should be done preferably in the hospital.

Abscesses in Pelvi-rectal Space: Collections of pus in the lateral spaces lying above the levator muscles and below the peritoneum or in the loose tissue or glands between the rectum and the sacrum are infrequent but offer considerable diagnostic difficulty when encountered.

The *symptoms* are often entirely constitutional or pelvic in early stages with temperature, leucocyte increase, vague pelvic discomfort and even low peritoneal rigidity. Referred pain to the sacral plexus is common.

The *diagnosis* is made by high digital examination, a boggy mass being detected outside the rectum either laterally or posterior which must be differentiated from prostatic abscess, submucous rectal abscess, retention of urine and low pelvic abscess.

Early incision under general or block anesthesia in a hospital is essential to prevent rupture into the rectum with sinus formation or even death. These abscesses are drained by an approach through the ischio-rectal space or between the coccyx and anus, the rectum should not be entered.

Anal Fistula: A fistula is a tract connecting two body surfaces resulting from injury, destructive inflammation, a neoplastic process or congenital defect.

While the great majority of sinuses which present openings in the perianal region are anal fistulae or tracts connecting the perianal skin or vagina with the anal canal, several other varieties of fistulae are found in this region. Openings in the midline of the male perineum may lead to the urethra, those in the posterior midline may be congenital or inflammatory outlets of pilonidal or coccygeal sinuses. Lateral openings an inch or more from the anal margin may be the secondary openings of rectal fistulae caused by stricture, benign or malignant.

The usual anal fistula presents one internal or primary opening in a crypt or more rarely in an anal ulcer and one or more discharging external or secondary openings on the skin.

Some two-thirds of this group show external outlets in the posterior ischio-rectal areas, posterior raphe or in the anterior ischio-rectal area more than an inch and a half from the anal orifice. Goodsall of St. Marks Hospital first called attention to the fact that these posterior type fistulae present curved tracts and have a common origin in a large crypt in the posterior commissure, while anterior openings near the anal orifice lead directly to the dentate line.

. Fistula may be complete with both primary and secondary openings present or incomplete where one or the other cannot be found. The exact type of fistula present is determined by the anatomical site of the abscess of which the fistulous tract is the contracted cavity.

The usual *symptoms* are the presence of discharging sinus with recurrent attacks of pain, swelling and redness when drainage is temporarily impeded. *Diagnosis* may be made by palpating the tract, by inserting a flexible probe, by injecting a dye, in complicated tracts by sterioscopic X-rays following injection of lipiodol.

The *treatment* is always surgical, fistulectomy calls for as much skill, ingenuity and judgment as is available and should be performed with the patient in a hospital under spinal, caudal or gas anesthesia.

I feel that the "regular" physician should be free to use any therapy which in his judgment will be helpful. His selection of methods should, however, be based on the degree of disease present in the individual patient.

For that reason in this discussion I have attempted to set out simple criteria by which such a decision may be reached in the management of some common ano-rectal diseases.

EDITORIALS

OUR PREPAREDNESS

The action of the House of Delegates of the A. M. A. in placing at the disposal of the Government the services of organized medicine in our preparation for defense gives us a very definite responsibility in Oklahoma.

We must know the status, both military and domestic, of every physician in the state. A year ago your Editor advised that a questionnaire be sent every physician, but by some one in authority it was vetoed. Had it been done we would now have this information and the physicians of the State classified as to availability and the service they can best perform.

There is no need to appeal to the patriotism of Oklahoma physicians, we are always ready to accept our responsibility, however the Surgeon General of the army will want some information and when the method of obtaining it is determined we must be prompt in furnishing it.

Social objectives have been before the people of this nation for the past seven years, now we must face an unsocial objective in the preparation for war or defense. The threat has been to our methods of practice, now the threat is to our whole nation in the form of tanks, swarming planes and every massed sort of military invasion.

Now we must not allow ourselves to be imposed upon at this time by becoming pawns in the hands of the administration during this emergency. There will still exist the effort to place medicine under federal control from which we must protect ourselves.

Keep your eye on the ball. Be thoroughly patriotic but not gullible.

MEMBERSHIP

It is most important for the Oklahoma State Medical Association to expand its membership by soliciting those eligible, who are not members, to join.

There are about 2,400 licensed physicians in the State. Of these, at least 2,000 are eligible for membership and among the principal reasons that they are not members is because they have not been solicited. It might appear that every physician should be sufficiently interested to seek membership, but this is unfortunately not the case and some one must accept the responsibility of carrying out a program of personal contact with these non-members and bring in their application.

A membership committee in the larger County Societies might be the solution of the problem while in the smaller societies the President and Secretary should be willing to undertake this task. In either instance, what it takes to get the job done is personal interest and determination to bring our membership up to a maximum.

Another activity that would increase membership is the organization of all unorganized counties and this is the job of our councilors, however, their efforts can be stimulated by the demands of our physicians in unorganized and neighboring counties.

Our new constitution provides that where two or more counties unite to form a Society that each component County shall be entitled to a delegate for each twenty-five members or fraction thereof. This will give the most fair representation in the House of Delegates to all physicians in the State.

Now let us go forward with this campaign to increase our membership and be prepared to show a united front in meeting the important questions that are now before not only the profession but the entire electorate of Oklahoma.

College of Surgeons Publishes Manual of Training in Surgery

Pursuant to its aim of raising the standards of surgery, the American College of Surgeons has published a 24-page "Manual of Graduate Training in Surgery" in which are incorporated the requirements for its approval of programs of training in general surgery and the surgical specialties in hospitals of the United States and Canada.

The "Manual" is the outcome of ten years of study of educational programs in surgery by the Board of Regents and several committees of the College. In 1937 a Committee on Graduate Training in Surgery was established under whose direction the field staff of the College personally surveyed a selected group of hospitals in connection with the work of the Hospital Standardization Department. Based on the findings of those surveys, "Fundamental Principles and Criteria" were developed which have been applied in evaluation of plans for graduate training in surgery. The plans of 179 hospitals have so far been approved by the College.

CORRECTION

The Journal erred in its May issue, when it identified a scientific article by Dr. V. H. Musick, "A Resume of the Advance Made in the Treatment of Human Pellagra," as having been read at the 1940 session of the Oklahoma State Medical Association. The article published in the May issue was one submitted several months ago, while a later paper on the subject was read at the last annual meeting.

• THE PRESIDENT'S PAGE •

Increasing responsibilities are being placed upon the officers and committees of our Association during 1940-41. The incessant propaganda against organized medicine and certain local issues strike at the very foundation of our profession and impress upon me the seriousness and gravity of the position with which you have honored me. I shall serve you to the best of my ability.

As physicians, we are not political-minded. We are interested in the science and art of medicine and in the health of the people of Oklahoma. However, when our professional life or death is involved, we believe we have a right to outline the therapy, and we intend to do so. The administration of the prescription, however, requires reinforcement of the firm foundation upon which our organization is established and which is now being attacked. To strengthen this foundation, we must have the *active* cooperation of every member and the enlistment of every physician eligible to become a member of our State Association.

Some may ask, "What benefits are to be derived from active membership in the Oklahoma State Medical Association?" A few of those benefits are:

(1) Eligibility to membership in national medical associations and special societies.

(2) Participation in the Medical Defense Fund in case of malpractice suits.

(3) A monthly scientific journal which is comparable to many of the leading medical publications.

(4) Executive headquarters where he or his county society may always come for information or aid.

(5) The counsel of numerous committees which are constantly at the services of members.

(6) Acceptance into post-graduate courses sponsored by the Association and which are rated among the best in the world.

(7) Assurance to the public, business firms, and insurance companies that the physician member is a reputable and qualified practitioner of medicine.

Remember, your State Medical Association can do things for you that you alone cannot accomplish. Support it—work for it—and the reward shall be yours.

Sincerely yours,

Henry A Turner

President.

ROSTER
Oklahoma State Medical Association
1940

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GRADY

BAZE, ROY E. ..... *Chickasha*
BAZE, WALTER J. ..... *Chickasha*
BONNELL, W. L. ..... *Chickasha*
BOON, U. C. ..... *Chickasha*
BYNUM, TURNER ..... *Chickasha*
DOWNEY, D. S. ..... *Chickasha*
EMANUEL, LEWIS E. ..... *Chickasha*
EMANUEL, ROY E. ..... *Chickasha*
HENNING, A. E. ..... *Tuttle*
LEEDS, A. B. ..... *Chickasha*
LITTLE, AARON ..... *Minco*
LIVERMORE, W. H. ..... *Chickasha*
MASON, REBECCA ..... *Chickasha*
McCLURE, H. M. ..... *Chickasha*
MITCHELL, C. P. ..... *Chickasha*
PYLE, OSCAR ..... *Chickasha*
RENEGAR, J. F. ..... *Tuttle*
WOODS, LEWIS E. ..... *Chickasha*

GRANT

HARDY, I. V. ..... *Medford*
LAWSON, E. E. ..... *Medford*

GREER

BORDER, G. F. ..... *Mangum*
BROWN, FOREST R. ..... *Mangum*
BUTTRAM, C. A. ..... *Mangum*
CHERRY, G. P. ..... *Mangum*
HOLLIS, J. B. ..... *Mangum*
LANSDEN, J. B. ..... *Granite*
LOWE, J. T. ..... *Mangum*
MEREDITH, J. S. ..... *Duke*
PEARSON, LEB E. ..... *Mangum*
POER, E. M. ..... *Mangum*
RUDE, JOE C. ..... *John Sealy Hospital, Galveston, Texas*

HARMON

HOLLIS, L. E. ..... *Hollis*
HOPKINS, S. W. ..... *Hollis*
HUSBAND, W. G. ..... *Hollis*
JONES, J. E. ..... *Hollis*
LYNCH, R. H. ..... *Hollis*
RAY, W. T. ..... *Gould*
STREET, O. J. ..... *Gould*
YEARGAN, W. M. ..... *Hollis*

HASKELL

CARSON, W. S. ..... *Keota*
RUMLEY, J. C. ..... *Stigler*
WILLIAMS, N. K. ..... *McCurtain*

HUGHES

DAVENPORT, A. L. ..... *Holdenville*
DAVENPORT, JOHN ..... *Holdenville*
HAMILTON, S. H. ..... *Non*
HICKS, C. A. ..... *Holdenville*
HOWELL, H. A. ..... *Holdenville*
JOHNSTON, L. A. S. ..... *Holdenville*
KERNEK, CLYDE ..... *Holdenville*
LONG, TROY F. ..... *Holdenville*
MAYFIELD, IMOGENE ..... *Holdenville*
MUNAL, JOHN ..... *Holdenville*
PRYOR, V. W. ..... *Holdenville*
SHAW, JAMES F. ..... *Wetumka*
TAYLOR, W. L. ..... *Holdenville*
WALLACE, C. S. ..... *Holdenville*

JACKSON

ABERNETHY, E. A. ..... *Altus*
ALLGOOD, J. M. ..... *Altus*
BERRY, THOMAS M. ..... *Jacksonville, Texas*
CROW, E. S. ..... *Olustee*
ENSEY, J. E. ..... *Altus*
FOX, R. H. ..... *Altus*
HIX, J. B. ..... *Altus*
HOLT, WILLARD D. ..... *Altus*
MABRY, E. W. ..... *Altus*
McCONNELL, L. H. ..... *Altus*
REID, J. R. ..... *Altus*
SPEARS, C. G. ..... *Altus*
STARKEY, W. A. ..... *Altus*
STULTS, J. S. ..... *Altus*
TAYOR, R. Z. ..... *Blair*

JEFFERSON

ANDRESKOWSKI, W. T. ..... *Ryan*
BROWNING, W. M. ..... *Waurika*
COLLINS, D. B. ..... *Waurika*
DERR, J. I. ..... *Waurika*
EDWARDS, F. M. ..... *Ringling*
HOLLINGSWORTH, J. I. ..... *Waurika*
MAUPIN, C. M. ..... *Waurika*
WADE, L. L. ..... *Ryan*

JOHNSTON

LOONEY, J. T. ..... *Tishomingo*

KAY

ARMSTRONG, W. O. ..... *Ponca City*
ARRENDELL, C. W. ..... *Ponca City*
BEATTY, J. H. ..... *Tonkawa*
BECKER, L. H. ..... *Blackwell*
BERRY, G. L. ..... *Blackwell*
CLIFT, MERL ..... *Blackwell*
CURRY, JOHN R. ..... *Blackwell*
GARDNER, C. C. ..... *Ponca City*
GHORMLEY, J. G. ..... *Blackwell*
GIBSON, R. B. ..... *Ponca City*
GOWEY, H. O. ..... *Newkirk*
HOWE, J. H. ..... *Ponca City*
HUDSON, J. O. ..... *Braman*
KENNEDY, VIRGIL N. ..... *Newkirk*
KINSINGER, R. R. ..... *Blackwell*
KREGER, G. S. ..... *Tonkawa*
MALL, W. W. ..... *Ponca City*
MATHEWS, DEWEY ..... *Tonkawa*
McELROY, THOMAS ..... *Ponca City*
MOORE, G. C. ..... *Ponca City*
MORGAN, L. S. ..... *Ponca City*
NEAL, L. G. ..... *Ponca City*
NIEMANN, G. H. ..... *Ponca City*
NORTHCUTT, C. E. ..... *Ponca City*
NUCKOLS, A. S. ..... *Ponca City*
RISSER, A. S. ..... *Blackwell*
RISSER, PHILIP ..... *Blackwell*
SANGER, W. W. ..... *Ponca City*
VANCE, L. C. ..... *Ponca City*
WALKER, I. D. ..... *Tonkawa*
WHITE, M. S. ..... *Blackwell*
WRIGHT, L. I. ..... *Blackwell*

YANDELL, HAYS R. ..... *Ponca City*
YEARY, G. H. ..... *Newkirk*

KINGFISHER

DIXON, A. ..... *Hennessey*
GOSE, C. O. ..... *Hennessey*
HODGSON, C. M. ..... *Kingfisher*
LATTIMORE, F. C. ..... *Kingfisher*
MEREDITH, A. O. ..... *Kingfisher*
STURGEON, H. VIOLET ..... *Hennessey*
TAYLOR, JOHN R. ..... *Kingfisher*
TOWNSEND, B. I. ..... *Hennessey*

KIOWA

ADAMS, J. L. ..... *Hobart*
BONHAM, J. M. ..... *Hobart*
BRAUN, J. P. ..... *Hobart*
FINCH, J. WM. ..... *Hobart*
HATHAWAY, A. H. ..... *Mountain View*
MOORE, J. H. ..... *Hobart*
WALKER, F. E. ..... *Lone Wolf*
WATKINS, B. H. ..... *Hobart*

LEFLORE

BAKER, F. P. ..... *Talihina*
BEVILL, S. D. ..... *Poteau*
BOOTH, G. R. ..... *LeFlore*
BRADLEY, FRANK ..... *Talihina*
COLLINS, E. L. ..... *Panama*
DEAN, S. C. ..... *Howe*
DORROUGH, J. ..... *Monroe*
FAIR, E. N. ..... *Heavener*
HARVEY, JOHN ..... *Heavener*
LOWREY, R. W. ..... *Poteau*
MINOR, R. W. ..... *Williams*
ROGERS, G. A. ..... *Talihina*
ROLLE, NEESON ..... *Poteau*
ROSBOROUGH, W. D. ..... *Talihina*
SHIPPEY, W. L. ..... *Poteau*
WOODSON, E. M. ..... *Poteau*
WOODSON, O. M. ..... *Poteau*
WRIGHT, R. L. ..... *Poteau*

LINCOLN

ADAMS, J. W. ..... *Chandler*
BAILEY, CARL H. ..... *Stroud*
BROWN, F. C. ..... *Sparks*
BURLESON, NED ..... *Prague*
DAVIS, W. B. ..... *Stroud*
ERWIN, PARA ..... *Wellston*
HURLBUT, E. F. ..... *Meeker*
JENKINS, H. B. ..... *Tryon*
MARSHALL, A. M. ..... *Chandler*
NICKELL, U. E. ..... *Davenport*
NORWOOD, F. H. ..... *Prague*
ROBERTSON, C. W. ..... *Chandler*
ROLLINS, J. S. ..... *Prague*

LOGAN

BARKER, PAULINE ..... *Guthrie*
CORNWELL, N. H. ..... *Coyle*
FIRST, F. R. ..... *Crescent*
GARDNER, P. B. ..... *Guthrie*
GRAY, DAN ..... *Guthrie*
HAHN, L. A. ..... *Guthrie*
HILL, C. B. ..... *Guthrie*
LARKIN, H. W. ..... *Guthrie*
LeHEW, J. LESLIE ..... *Guthrie*
MILLER, W. C. ..... *Guthrie*
PETTY, C. S. ..... *Guthrie*
PETTY, JAMES S. ..... *Guthrie*
RINGROSE, R. F. ..... *Guthrie*
RITZHAUPT, L. H. ..... *Guthrie*
SOUTER, J. E. ..... *Guthrie*

MARSHALL

HOLLAND, JOHN LEE ..... *Madill*
RAFF, J. S. ..... *Madill*
YORK, JOS. F. ..... *Madill*

MAYES

COPPEDGE, O. N. ..... *Disney*
MORROW, B. L. ..... *Salina*
PUCKETT, CARL ..... *22 W. 6th, Okla. City*
WERLING, E. H. ..... *Pryor*
WHITAKER, W. J. ..... *Pryor*
WHITE, L. C. ..... *Adair*

McCLAIN

BARGER, G. S. ..... *Purcell*
COCHRANE, J. E. ..... *Byars*
DAWSON, O. O. ..... *Wayne*
KOLB, I. N. ..... *Blanchard*
McCURDY, W. C. ..... *Purcell*
McCURDY, W. C., JR. ..... *Purcell*
ROYSTER, R. L. ..... *Purcell*

McCURTAIN

BARKER, N. L. ..... *Broken Bow*
CLARKSON, A. W. ..... *Valliant*
FRAZIER, RALPH ..... *Wright City*
McBRAYER, W. D. ..... *Haworth*
McCASKILL, W. B. ..... *Idabel*
MORELAND, J. T. ..... *Idabel*
MORELAND, W. A. ..... *Idabel*
SHERRILL, R. H. ..... *Broken Bow*
SIZEMORE, PAUL ..... *Broken Bow*
WILLIAMS, R. D. ..... *Idabel*

McINTOSH

JACOBS, LUSTER I. ..... *Hanna*
LITTLE, DANIEL E. ..... *Eufaula*
ROY, EMILE ..... *Checotah*
STONER, RAYMOND W. ..... *Checotah*
TOLLESON, WILLIAM A. ..... *Eufaula*
WOOD, JAMES L. ..... *Eufaula*

MURRAY

ANNADOWN, P. V. ..... *Sulphur*
FOWLER, ARTHUR ..... *Sulphur*
*LUSTER, J. C. ..... *Davis*
PARKER, WARREN E. ..... *Davis*
POWELL, W. H. ..... *Sulphur*
SADLER, F. E. ..... *Sulphur*
SLOVER, GEORGE W. ..... *Sulphur*

MUSKOGEE

BALLANTINE, H. T. ..... *Muskogee*
COACHMAN, E. H. ..... *Muskogee*
DIVINE, D. G. ..... *Wagoner*
DORWART, F. G. ..... *Muskogee*
DOYLE, W. H. ..... *Muskogee*
EWING, FINIS W. ..... *Muskogee*
FITE, E. H. ..... *Muskogee*
FITE, W. P. ..... *Muskogee*
FULLENWIDER, C. M. ..... *Muskogee*
HAMM, S. G. ..... *Haskell*
HOLCOMBE, R. N. ..... *Muskogee*
JOBLIN, W. R. ..... *Porter*
KLASS, O. C. ..... *Muskogee*
KUPKA, JOHN F. ..... *Haskell*
McALISTER, L. S. ..... *Muskogee*
McINNIS, J. T. ..... *Muskogee*
MOBLEY, A. L. ..... *Albuquerque, N. M.*
MOLLICA, STEPHEN G. ..... *Muskogee*
NEELY, SHADE D. ..... *Muskogee*
OGLESBEE, C. L. ..... *Muskogee*
OLDHAM, I. B. ..... *Muskogee*
OLDHAM, I. B., JR. ..... *Muskogee*
RAFTER, J. G. ..... *Muskogee*
RAFTER, JOHN R. ..... *Muskogee*
SANDERS, H. U. ..... *Muskogee*
SCOTT, H. A. ..... *Muskogee*
WALKER, J. H. ..... *Muskogee*
WARTERFIELD, F. E. ..... *Muskogee*
WEAVER, W. N. ..... *Muskogee*
WHITE, CHARLES ED ..... *Muskogee*
WHITE, J. HUTCHINGS ..... *Muskogee*
WOLFE, I. C. ..... *Muskogee*
WOODBURN, JOEL T. ..... *Muskogee*

NOBLE

COLDIRON, D. F. ..... *Perry*
COOKE, C. H. ..... *Perry*
EVANS, A. M. ..... *Perry*
FRANCIS, J. W. ..... *Perry*
HEISS, J. E. ..... *Perry*
RENFROW, T. F. ..... *Billings*
WIGNER, R. H. ..... *Marland*

OKFUSKEE

BLOSS, C. M., JR. ..... *Okemah*

*Died May 17, 1940.

BOMBARGER, C. C. ..... *Paden*
BRICE, M. O. ..... *Okemah*
COCHRAN, C. M. ..... *Okemah*
KORNBLEE, A. T. ..... *Weleetka*
LUCAS, A. C. ..... *Castle*
MELTON, A. S. ..... *Okemah*
PEMBERTON, J. M. ..... *Okemah*
PRESTON, J. R. ..... *Weleetka*
SPICKARD, L. J. ..... *Okemah*

OKLAHOMA

ADAMS, ROBERT H. ..... *Ramsey Tower*
AKIN, ROBERT H. ..... 400 *W. Tenth*
ALFORD, J. M. ..... *Medical Arts Bldg.*
ALLEN, E. P. ..... 1200 *N. Walker*
ALLEN, GEORGE T. ..... 1200 *N. Walker*
ANDREWS, LEILA E. ..... 1200 *N. Walker*
ARRINGTON, C. T. ..... 715½ *N. Walnut*
BAILEY, F. M. ..... *Quemado, N. M.*
BAILEY, W. H. ..... 301 *N. W. Twelfth*
BAIRD, J. BYRON ..... 2519½ *S. Robinson*
BAIRD, W. D., JR. ..... 2519½ *S. Robinson*
BALYEAT, RAY M. ..... 1200 *N. Walker*
BARB, T. J. ..... 318 *S. W. 25th St.*
BARKER, C. E. ..... 1200 *N. Walker*
BARRY, G. N. ..... 800 *N. E. 13th St.*
BATCHELOR, JOHN J. ..... *Medical Arts Bldg.*
BAUM, E. ELDON ..... *Medical Arts Bldg.*
BELL, AUSTIN H. ..... 301 *N. W. Twelfth*
BINKLEY, J. G. ..... *Medical Arts Bldg.*
BOATRIGHT, LLOYD C. ..... *Perrine Bldg.*
BOGGS, NATHAN ..... *Perrine Bldg.*
BOLEND, REX ..... *Medical Arts Bldg.*
BONDURANT, C. P. ..... *Medical Arts Bldg.*
BONHAM, WILLIAM L. ..... *Medical Arts Bldg.*
BORDER, C. L. ..... *Amer. Natl. Bldg.*
BORECKY, GEORGE ..... *Ramsey Tower*
BRADLEY, H. C. ..... *Perrine Bldg.*
BRANHAM, D. W. ..... *Medical Arts Bldg.*
BREWER, A. M. ..... *Perrine Bldg.*
BROWN, GERSTER W. ..... *Medical Arts Bldg.*
BRUNDAGE, CARL L. ..... 1200 *N. Walker*
BURTON, JOHN F. ..... 1200 *N. Walker*
BUTLER, H. W. ..... 1200 *N. Walker*
CAMPBELL, COYNE H. ..... 717 *N. Robinson*
CAILEY, LEO F. ..... *Medical Arts Bldg.*
CATES, ALBERT M. ..... 2733 *N. W. 20th St.*
CAVINESS, J. J. ..... *Medical Arts Bldg.*
CHAFFIN, ZALE ..... *Municipal Bldg.*
CHARNEY, L. H. ..... *Medical Arts Bldg.*
CLARK, ANSON L. ..... *Medical Arts Bldg.*
CLARK, LeMON ..... *Medical Arts Bldg.*
CLARK, RALPH O. ..... 1706 *S. E. 29th St.*
CLOUDMAN, H. H. ..... *Medical Arts Bldg.*
CLYMER, C. E. ..... *Medical Arts Bldg.*
COLEY, A. J. ..... *Hightower Bldg.*
COLEY, JOE H. ..... *Hightower Bldg.*
COLLINS, H. DALE ..... *Medical Arts Bldg.*
COLLOPY, PAUL J. ..... *State Health Dept.*
COLONNA, PAUL C. ..... 800 *N. E. 13th St.*
COOPER, F. M. ..... *Medical Arts Bldg.*
COSTON, TULLOS O. ..... *Medical Arts Bldg.*
CUNNINGHAM, JOHN A. ..... 209 *N. W. 13th St.*
DAILY, H. J. ..... *Medical Arts Bldg.*
DANIELS, HARRY A. ..... 610 *N. W. Ninth*
DeMAND, F. A. ..... 1200 *N. Walker*
DERSCH, WALTER ..... *Medical Arts Bldg.*
DEUPREE, HARRY L. ..... *Medical Arts Bldg.*
DICKSON, GREEN K. ..... 1200 *N. Walker*
DOUDNA, HUBERT E. ..... 800 *N. E. 13th St.*
DOUGHERTY, VIRGIL ..... *Sudan, Africa*
DOWDY, THOMAS W. ..... *Medical Arts Bldg.*
DRUMMOND, N. ROBERT ..... *Medical Arts Bldg.*
EARLY, RALPH O. ..... *Medical Arts Bldg.*
EASTLAND, WILLIAM E. ..... *Medical Arts Bldg.*
ELEY, N. PRICE ..... 400 *N. W. 10th St.*
ELLIS, STEPHEN S. ..... 610 *N. W. Ninth*
EMENHISER, LEE K. ..... *Medical Arts Bldg.*
ERWIN, FRANZ B. ..... *Medical Arts Bldg.*
ESKRIDGE, J. B., JR. ..... 1200 *N. Walker*
FARIS, BRUNEL D. ..... *Medical Arts Bldg.*
FELTS, GEORGE R. ..... 1200 *N. Walker*
FERGUSON, E. GORDON ..... *Medical Arts Bldg.*
FERGUSON, E. S. ..... *Medical Arts Bldg.*
FISHMAN, C. J. ..... 132 *N. W. Fourth*
FITZ, R. J. ..... *North China*
FLESHER, THOMAS H. ..... *Edmond*
FOERSTER, HERVEY A. ..... *Medical Arts Bldg.*
FORD, HARRY C. ..... *Medical Arts Bldg.*
FRIERSON, S. E. ..... *Medical Arts Bldg.*
FULTON, C. C. ..... *Medical Arts Bldg.*
FULTON, GEORGE ..... *Amer. Natl. Bank*
GALBRAITH, HUGH M. ..... 717 *N. Robinson*
GALLAGHER, C. A. ..... 610 *N. W. Ninth*
GARRISON, GEORGE H. ..... 1200 *N. Walker*
GEE, O. J. ..... *Medical Arts Bldg.*
GIBBS, ALLEN G. ..... *Ramsey Tower*
GLOMSET, JOHN L. ..... 1200 *N. Walker*
GOLDFAIN, E. ..... *Medical Arts Bldg.*
GOODWIN, R. Q. ..... *Medical Arts Bldg.*
GRAHAM, A. T. ..... 26 *S. W. 25th St.*
HALL, CLARK H. ..... *Medical Arts Bldg.*
HARBISON, FRANK ..... *Terminal Bldg.*
HARBISON, J. E. ..... *Terminal Bldg.*
HARRIS, HENRY W. ..... 1200 *N. Walker*
HASKETT, PAUL E. ..... *Hales Bldg.*
HASSLER, GRACE C. ..... *Medical Arts Bldg.*
HATCHETT, JOHN A. ..... 1329 *Classen*
HAYES, BASIL A. ..... 625 *N. W. Tenth*
HAZEL, ONIS G. ..... 1200 *N. Walker*
HEATLEY, JOHN E. ..... *Medical Arts Bldg.*
HERRMANN, JESS D. ..... *Medical Arts Bldg.*
HETHERINGTON, A. J. ..... 2014 *Gatewood*
HICKS, FRED B. ..... *Medical Arts Bldg.*
HIRSHFIELD, A. C. ..... *Medical Arts Bldg.*
HOLLIDAY, J. R. ..... *Medical Arts Bldg.*
HOLLINGSWORTH, C. EDWARD ..... *Medical Arts Bldg.*
HOOD, F. REDDING ..... 1200 *N. Walker*
HOWARD, R. M. ..... 1200 *N. Walker*
HOWARD, ROBERT B. ..... 1200 *N. Walker*
HUGGINS, J. R. ..... 2225 *Exchange Ave.*
HULL, WAYNE M. ..... 1200 *N. Walker*
HUNTER, GEORGE ..... *County Court House*
HYROOP, GILBERT L. ..... *Medical Arts Bldg.*
ISHMAEL, WILLIAM K. ..... 605 *N. W. Tenth*
JACKSON, A. R. ..... 2528½ *S. Robinson*
JACOBS, MINARD F. ..... *Medical Arts Bldg.*
JANCO, LEON ..... 10 *West Park*
JETER, HUGH ..... 1200 *N. Walker*
JOLLY, W. J. ..... 614 *N. W. 14th St.*
JONES, HUGH ..... *Medical Arts Bldg.*
KELLER, W. F. ..... *Medical Arts Bldg.*
KELSO, JOS. W. ..... *Medical Arts Bldg.*
KELTZ, BERT F. ..... *Medical Arts Bldg.*
KERNODLE, STRATTON E. ..... *First National Bldg.*
KIMBALL, GEORGE H. ..... *Medical Arts Bldg.*
KUHN, JOHN F., SR. ..... *Medical Arts Bldg.*
KUHN, JOHN F., JR. ..... *Medical Arts Bldg.*
KURZNER, MEYER ..... 1200 *N. Walker*
LACHMANN, ERNST ..... 801 *N. E. 13th St.*
LAIN, EVERETT S. ..... *Medical Arts Bldg.*
LAMB, JOHN H. ..... *Medical Arts Bldg.*
LAMBKE, PHIL M. ..... 105 *N. W. 23rd St.*
LaMOTTE, GEORGE A. ..... *Colcord Bldg.*
LANGSTON, WANN ..... *Medical Arts Bldg.*
LEMON, C. W. ..... *Medical Arts Bldg.*
LEONARD, CHARLES E. ..... 531 *Fullerton Parkway Chicago, Ill.*
LINDSTROM, W. CARL ..... *Medical Arts Bldg.*
LINGENFELTER, F. M. ..... 1200 *N. Walker*
LITTLE, JOHN R. ..... *Ramsey Tower*
LONG, LeROY ..... *Medical Arts Bldg.*
LONG, LeROY D. ..... *Medical Arts Bldg.*
LONG, WENDELL ..... *Medical Arts Bldg.*
LOWRY, DICK ..... 1200 *N. Walker*
LOWRY, TOM ..... 1200 *N. Walker*
LOY, C. F. ..... *Perrine Bldg.*
LUTON, JAMES P. ..... *Medical Arts Bldg.*
LYON, JAMES I. ..... *Edmond*

MACDONALD, J. C. ..... 301 *N. W. 12th St.*
MARGO, ELIAS ..... 605 *N. W. Tenth*
MARIL, JOSEPH J. ..... *Medical Arts Bldg.*
MARTIN, J. T. ..... 1200 *N. Walker*
MARTIN, HOWARD C. ..... *Ramsey Tower*
McBRIDE, EARL D. ..... 605 *N. W. Tenth*
McGEE, J. P. ..... 1200 *N. Walker*
McHENRY, L. CHESTER ..... *Medical Arts Bldg.*
McKAY, EDWARD D. ..... *Episcopal Eye, Ear, Nose and Throat Hospital, Washington, D. C.*
McKINNEY, MILAM F. ..... *Medical Arts Bldg.*
McLAUCHLIN, J. R. ..... 112 *N. W. 14th St.*
McNEILL, P. M. ..... *Medical Arts Bldg.*
McCHLING, GEORGE S. ..... 1200 *N. Walker*
MELVIN, JAMES H. ..... *Perrine Bldg.*
MESSENBAUGH, J. F. ..... *Colcord Bldg.*
MILES, W. H. ..... *Municipal Bldg.*
MILLS, R. C. ..... *Hightower Bldg.*
MOOR, H. D. ..... 801 *N. E. 13th St.*
MOORE, B. H. ..... *Perrine Bldg.*
MOORE, ELLIS ..... *Medical Arts Bldg.*
MOORMAN, FLOYD ..... 1200 *N. Walker*
MOORMAN, L. J. ..... 1200 *N. Walker*
MORGAN, C. A. ..... *First National Bldg.*
MORLEDGE, WALKER ..... 1200 *N. Walker*
MORRISON, H. C. ..... 807 *N. W. 23rd St.*
MULVEY, BERT E. ..... *Medical Arts Bldg.*
MURDOCH, RAYMOND L. ..... *Medical Arts Bldg.*
MUSICK, E. R. ..... *Medical Arts Bldg.*
MUSICK, V. H. ..... *Medical Arts Bldg.*
MUSSIL, W. M. ..... *Medical Arts Bldg.*
MYERS, RALPH E. ..... 1200 *N. Walker*
NAGLE, PATRICK S. ..... 1021 *N. Lee*
NEFF, EVERETT B. ..... 1200 *N. Walker*
NICHOLSON, BEN H. ..... 301 *N. W. 12th St.*
NOELL, ROBERT L. ..... *Medical Arts Bldg.*
O'DONOGHUE, D. H. ..... *Medical Arts Bldg.*
O'LEARY, CHARLES M. ..... *Medical Arts Bldg.*
PATTERSON, ROBERT U. ..... 700 *N. W. 18th St.*
PAULUS, D. D. ..... 301 *N. W. 12th St.*
PAYTE, J. I. ..... 2429 *Aurora Court*
PENICK, GRIDER ..... *Colcord Bldg.*
PHELPS, A. S. ..... *Medical Arts Bldg.*
PINE, JOHN S. ..... *Medical Arts Bldg.*
POOLE, WARREN ..... *Medical Arts Bldg.*
POSTELLE, J. M. ..... *Medical Arts Bldg.*
POUNDERS, CARROLL M. ..... 1200 *N. Walker*
PRICE, JOEL S. ..... 1200 *N. Walker*
RANDEL, HARVEY O. ..... *Medical Arts Bldg.*
RECK, JOHN A. ..... *Colcord Bldg.*
RECORDS, JOHN W. ..... 301 *N. W. 12th St.*
REED, HORACE ..... 1200 *N. Walker*
REED, JAMES R. ..... *Medical Arts Bldg.*
REICHMANN, RUTH S. ..... 124 *N. W. 15th St.*
RICKS, JAMES R. ..... *Medical Arts Bldg.*
RIELY, LEA A. ..... *Medical Arts Bldg.*
RILEY, J. W. ..... 119 *N. W. Fifth*
ROBINSON, J. H. ..... 301 *N. W. 12th St.*
RODDY, JOHN A. ..... *Ramsey Tower*
ROGERS, GERALD ..... 1200 *N. Walker*
ROSENBERGER, F. E. ..... *Perrine Bldg.*
ROUNTREE, C. R. ..... 1200 *N. Walker*
RUCKS, W. W., JR. ..... 301 *N. W. 12th St.*
RUCKS, W. W., SR. ..... 301 *N. W. 12th St.*
SADLER, LeROY ..... 1200 *N. Walker*
SALOMON, A. L. ..... 1200 *N. Walker*
SANGER, FENTON A. ..... *Key Building*
SERWER, MILTON J. ..... 1200 *N. Walker*
SEWELL, DAN R. ..... 400 *N. W. Tenth*
SHACKELFORD, JOHN W. ..... *State Health Dept.*
SHELBY, HUDSON S. ..... *Hales Bldg.*
SHELTON, J. W. ..... *Medical Arts Bldg.*
SHEPPARD, MARY V. S. ..... 1200 *N. Walker*
SHORBE, HOWARD B. ..... 605 *N. W. Tenth*
SMITH, CHARLES A. ..... 717 *N. Robinson*
SMITH, DELBERT G. ..... *First National Bldg.*
SMITH, RALPH A. ..... 443½ *N. W. 23rd St.*
SNOW, J. B. ..... 1200 *N. Walker*
STANBRO, GREGORY E. ..... *Medical Arts Bldg.*
STARRY, L. J. ..... 1200 *N. Walker*
STONE, S. N. ..... *Edmond*
STOUT, MARVIN E. ..... 209 *N. W. 13th St.*
STRECKER, W. E. ..... *Medical Arts Bldg.*
SULLIVAN, ELIJAH S. ..... *Medical Arts Bldg.*
TABOR, GEORGE R. ..... 120 *N. Robinson*
TAYLOR, CHARLES B. ..... *Medical Arts Bldg.*
TAYLOR, W. M. ..... 1200 *N. Walker*
THOMPSON, WAYMAN J. ..... 1200 *N. Walker*
TOOL, DONOVAN ..... *Edmond*
TOWNSEND, CARY W. ..... *Medical Arts Bldg.*
TRENT, ROBERT I. ..... *Medical Arts Bldg.*
TURNER, HENRY H. ..... 1200 *N. Walker*
VAHLBERG, E. R. ..... *Perrine Bldg.*
VON WEDEL, CURT ..... 610 *N. W. Ninth*
WAILS, THEODORE G. ..... *Medical Arts Bldg.*
WAINWRIGHT, TOM L. ..... *Medical Arts Bldg.*
WARMACK, J. C. ..... 200 *N. W. 16th St.*
WATSON, I. N. ..... *Edmond*
WATSON, O. ALTON ..... 1200 *N. Walker*
WATSON, R. D. ..... *Britton*
WEIR, MARSHALL W. ..... *Ramsey Tower*
WELLS, EVA ..... *Medical Arts Bldg.*
WELLS, LOIS LYON ..... 800 *N. E. 13th St.*
WELLS, WALTER W. ..... *Medical Arts Bldg.*
WESTFALL, L. M. ..... *Medical Arts Bldg.*
WEST, W. K. ..... 1200 *N. Walker*
WHITE, ARTHUR W. ..... *Medical Arts Bldg.*
WHITE, OSCAR R. ..... 1200 *N. Walker*
WHITE, PHIL E. ..... *Perrine Bldg.*
WILDMAN, S. F. ..... *Medical Arts Bldg.*
WILKINS, HARRY ..... *Medical Arts Bldg.*
WILLIAMS, LEONARD C. ..... 1200 *N. Walker*
WILLIAMSON, W. H. ..... 128 *N. W. 14th St.*
WILLIE, JAMES A. ..... *Medical Arts Bldg.*
WILSON, KENNETH J. ..... *Medical Arts Bldg.*
WITTEN, HAROLD B. ..... *Harrah*
WOLFF, JOHN POWERS ..... 1200 *W. Walker*
WOODWARD, NEIL W. ..... 1200 *N. Walker*
WRIGHT, HARPER ..... 318 *S. W. 25th St.*
YOUNG, A. M., JR. ..... *Medical Arts Bldg.*
YOUNG, A. M. 3rd ..... *Medical Arts Bldg.*

OKMULGEE

ALEXANDER, LIN ..... *Okmulgee*
ALEXANDER, ROBERT L. ..... *Okmulgee*
BOLLINGER, I. W. ..... *Henryetta*
BOSWELL, H. D. ..... *Henryetta*
CARLOSS, T. C. ..... *Morris*
CARNELL, M. D. ..... *Okmulgee*
COTTERAL, J. R. ..... *Henryetta*
EDWARDS, J. G. ..... *Okmulgee*
GILSMANN, M. B. ..... *Okmulgee*
HOLMES, A. R. ..... *Henryetta*
HUDSON, W. S. ..... *Okmulgee*
KILPATRICK, G. A. ..... *Henryetta*
LESLIE, S. B. ..... *Okmulgee*
MABEN, CHARLES S. ..... *Okmulgee*
MATHENEY, J. C. ..... *Okmulgee*
McKINNEY, G. Y. ..... *Henryetta*
MING, C. M. ..... *Okmulgee*
MITCHENER, W. C. ..... *Okmulgee*
RAINS, HUGH L. ..... *Okmulgee*
RODDA, E. D. ..... *Okmulgee*
SIMPSON, N. N. ..... *Henryetta*
SMITH, C. E. ..... *Henryetta*
TRACEWELL, GEORGE L. ..... *Okmulgee*
VERNON, W. C. ..... *Okmulgee*
WATSON, F. S. ..... *Okmulgee*

OSAGE

AARON, WILLIAM H. ..... *Pawhuska*
BAYLOR, RICHARD A. ..... *Fairfax*
DALY, JOHN F. ..... *Pawhuska*
DOZIER, BARCLAY E. ..... *Shidler*
ETHERTON, MONTE C. ..... *C. C. C. Camp, Pawhuska*
GOVAN, THOMAS P. ..... *Pawhuska*
GUILD, CARL H. ..... *Shidler*
HEMPHILL, GEORGE K. ..... *Pawhuska*
HEMPHILL, PAUL H. ..... *Pawhuska*
KARASEK, MATTHEW ..... *Shidler*

KIMBALL, M. C. ..... *Webb City*
LIPE, EVERETT N. ..... *Fairfax*
LOGAN, C. K. ..... *Hominy*
RAGAN, TILLMAN A. ..... *Fairfax*
SMITH, RAYMOND O. ..... *Hominy*
SULLIVAN, B. F. ..... *Barnsdall*
WALKER, G. I. ..... *Hominy*
WALKER, ROSCOE ..... *Pawhuska*
WEIRICH, COLIN REID ..... *Pawhuska*
WILLIAMS, CLAUDE W. ..... *Pawhuska*
WORTEN, DIVONIS ..... *Pawhuska*

OTTAWA

AISENSTADT, E. ALBERT ..... *Picher*
BARRY, J. R. ..... *Picher*
CANNON, R. F. ..... *Miami*
CHESNUT, W. G. ..... *Miami*
COLVERT, GEORGE W. ..... *Miami*
CONNELL, M. A. ..... *Picher*
COOGAN, J. H. ..... *Miami*
CRAIG, J. W. ..... *Miami*
CUNNINGHAM, P. J. ..... *Miami*
DeARMAN, M. M. ..... *Miami*
DeTAR, GEORGE A. ..... *Miami*
DUEWALL, R. H. ..... *Miami*
HAMPTON, J. B. ..... *Commerce*
HETHERINGTON, L. P. ..... *Miami*
HUGHES, A. R. ..... *Afton*
JACOBY, J. SHERWOOD ..... *Commerce*
KERR, WALTER C. H. ..... *Picher*
McNAUGHTON, G. P. ..... *Miami*
MILLER, H. K. ..... *Fairland*
RALSTON, BENJAMIN W. ..... *Commerce*
RITCHEY, H. C. ..... *Picher*
RUSSELL, RICHARD ..... *Picher*
SAYLES, W. JACKSON ..... *Miami*
SHELTON, B. WRIGHT ..... *Miami*
SIEVER, CHARLES M. ..... *Picher*
SMITH, W. B. ..... *Fairland*
STAPLES, J. H. L. ..... *Afton*
WORMINGTON, F. L. ..... *Miami*

PAWNEE

BROWNING, R. L. ..... *Pawnee*
JONES, R. E. ..... *Pawnee*
LeHEW, ELTON ..... *Pawnee*
LeHEW, J. L. ..... *Pawnee*
ROBINSON, E. T. ..... *Cleveland*
SADDORIS, M. L. ..... *Cleveland*
SPAULDING, H. B. ..... *Ralston*

PAYNE

BASSETT, CLIFFORD M. ..... *Cushing*
CLEVERDON, L. A. ..... *Stillwater*
DAVIS, BENJAMIN ..... *Cushing*
DAVIDSON, W. N. ..... *Cushing*
FRIEDEMANN, PAUL W. ..... *Stillwater*
FRY, POWELL E. ..... *Stillwater*
HACKLER, JOHN F. ..... *Stillwater*
HARRIS, E. M. ..... *Cushing*
HOLBROOK, R. W. ..... *Perkins*
LEATHEROCK, R. E. ..... *Cushing*
MANNING, H. C. ..... *Cushing*
MARTIN, E. O. ..... *Cushing*
MARTIN, JOHN F. ..... *Stillwater*
MARTIN, JOHN W. ..... *Cushing*
MITCHELL, L. A. ..... *Stillwater*
OEHLSCHLAGER, F. KEITH ..... *Yale*
PERRY, DAN L. ..... *Cushing*
PETER, MAURICE L. ..... *Stillwater*
PUCKETT, HOWARD L. ..... *Stillwater*
RICHARDSON, P. M. ..... *Cushing*
ROBERTS, R. E. ..... *Stillwater*
SMITH, A. B. ..... *Stillwater*
SMITH, HASKELL ..... *Stillwater*
STEVENSON, DORA WILEY ..... *Stillwater*
THOMPSON, W. C. ..... *Stillwater*
WAGGONER, ROY E. ..... *Stillwater*
WALTRIP, J. R. ..... *Yale*
WILHITE, L. R. ..... *Perkins*
WRIGHT, J. M. ..... *Stillwater*

PITTSBURG

BAUM, F. J. ..... *McAlester*
BARTHELD, FLOYD ..... *McAlester*
BUNN, A. D. ..... *Savanna*
DORROUGH, JOE ..... *McAlester*
ELLIS, H. A. ..... *Pittsburg*
GEORGE, L. J. ..... *Stuart*
GREENBERGER, EDWARD D. ..... *McAlester*
HARRIS, J. M. ..... *Wilburton*
KAEISER, WILLIAM H. ..... *McAlester*
KILPATRICK, GEORGE A. ..... *McAlester*
KLOTZ, WILLIAM ..... *McAlester*
KUYRKENDALL, L. C. ..... *McAlester*
LIVELY, C. E. ..... *McAlester*
McCARLEY, T. H. ..... *McAlester*
MUNN, JESSE A. ..... *McAlester*
NORRIS, T. T. ..... *Krebs*
PARK, JOHN F. ..... *McAlester*
PEMBERTON, R. K. ..... *McAlester*
RAMSEY, W. G. ..... *McAlester*
RICE, O. W. ..... *McAlester*
SAMES, W. W. ..... *Hartshorne*
SHULLER, E. H. ..... *McAlester*
STOUGH, A. R. ..... *McAlester*
WAIT, W. C. ..... *McAlester*
WELCH, A. J. ..... *McAlester*
WILLIAMS, C. O. ..... *McAlester*
WILLOUR, L. S. ..... *McAlester*
WILSON, HERBERT A. ..... *McAlester*

PONTOTOC

BRECO, J. G. ..... *Ada*
BRYDIA, CATHERINE ..... *Ada*
CANADA, ERNEST A. ..... *Ada*
COWLING, ROBERT E. ..... *Ada*
CUMMINGS, I. L. ..... *Ada*
DEAN, W. F. ..... *Ada*
EVANS, R. ERLE ..... *Ada*
GULLATT, E. M. ..... *Ada*
LEWIS, E. F. ..... *Ada*
LEWIS, M. L. ..... *Ada*
McBRIDE, OLLIE ..... *Ada*
McKEEL, SAM A. ..... *Ada*
MILLER, O. H. ..... *Ada*
MOREY, J. B. ..... *Ada*
MUNTZ, E. R. ..... *Ada*
MURRAY, E. C. ..... *Ada*
NEEDHAM, C. F. ..... *Ada*
PETERSON, W. G. ..... *Ada*
ROSS, S. P. ..... *Ada*
RUTLEDGE, J. A. ..... *Ada*
SUGG, A. R. ..... *Ada*
WEBSTER, HARRELL ..... *Ada*
WEBSTER, M. M. ..... *Ada*
WELBORN, O. E. ..... *Ada*

POTTAWATOMIE

ALLEY, RALPH M. ..... *Shawnee*
ANDERSON, R. M. ..... *Shawnee*
BALL, W. A. ..... *Wanette*
BAKER, M. A. ..... *Shawnee*
BAXTER, GEORGE S. ..... *Shawnee*
BROWN, R. A. ..... *Prague, R.F.D.*
BYRUM, J. M. ..... *Shawnee*
CAMPBELL, H. G. ..... *St. Louis, Okla.*
CARSON, F. L. ..... *Shawnee*
CARSON, JOHN M. ..... *Shawnee*
CORDELL, U. S. ..... *McComb*
CULBERTSON, R. R. ..... *Maud*
CULLUM, J. E. ..... *Earlsboro*
FORTSON, J. L. ..... *Tecumseh*
GALLAHER, CLINTON ..... *Shawnee*
GALLAHER, PAUL ..... *Shawnee*
GALLAHER, W. M. ..... *Shawnee*
GASTON, JOHN I. ..... *Shawnee*
GILLICK, DAVID W. ..... *Federal Bldg., Oklahoma City*
HASSLER, F. R. ..... *Shawnee*
HUGHES, HORTON E. ..... *Shawnee*
HUGHES, J. E. ..... *Shawnee*
IRBY, J. P. ..... *Maud*

KAYLER, R. C. ..... *McLoud*
KEEN, FRANK M. ..... *Shawnee*
MATTHEWS, W. F. ..... *Tecumseh*
McFARLING, A. C. ..... *Shawnee*
McFARLING, JOHN ..... *Shawnee*
NEWLIN, FRANCIS P. ..... *Shawnee*
PARAMORE, C. F. ..... *Shawnee*
RICE, E. EUGENE ..... *Shawnee*
ROWLAND, T. D. ..... *Shawnee*
WALKER, J. A. ..... *Shawnee*
WILLIAMS, ALPHA McADAMS ..... *Shawnee*
YOUNG, C. C. ..... *Shawnee*

PUSHMATAHA

CONNALLY, D. W. ..... *Antlers*
HUCKABY, B. M. ..... *Antlers*
KIRKPATRICK, J. ..... *Tuskahoma*
LAWSON, JOHN S. ..... *Clayton*
PATTERSON, E. S. ..... *Antlers*
RICE, P. B. ..... *Antlers*

ROGERS

ANDERSON, F. A. ..... *Claremore*
ANDERSON, P. S. ..... *Claremore*
ANDERSON, W. D. ..... *Claremore*
BESON, CLYDE W. ..... *Claremore*
BIGLER, E. E. ..... *Claremore*
CALDWELL, C. L. ..... *Chelsea*
COLLINS, B. F. ..... *Claremore*
HOWARD, W. A. ..... *Chelsea*
JENNINGS, K. D. ..... *Chelsea*
MELOY, R. C. ..... *Claremore*
NELSON, D. C. ..... *Claremore*

SEMINOLE

CHAMBERS, CLAUDE S. ..... *Seminole*
DEATON, A. N. ..... *Wewoka*
GIESEN, A. F. ..... *Konawa*
HARBER, J. N. ..... *Seminole*
HARTSHORNE, WILLIAM O. ..... *Cromwell*
HUDDLESTON, W. T. ..... *Konawa*
JONES, RUTH ..... *Seminole*
JONES, W. E. ..... *Seminole*
KNIGHT, CLAUDE B. ..... *Wewoka*
LYONS, D. J. ..... *Seminole*
LYTLE, WILLIAM R. ..... *Seminole*
MILLS, N. W. ..... *Seminole*
MOSHER, D. D. ..... *Seminole*
PACE, L. R. ..... *Seminole*
PRICE, J. T. ..... *Seminole*
REEDER, H. M. ..... *Konawa*
SHANHOLTZ, MACK I. ..... *Seminole*
STEPHENS, A. B. ..... *Seminole*
TERRY, JOHN B. ..... *Wewoka*
VAN SANDT, GUY B. ..... *Wewoka*
VAN SANDT, MAX M. ..... *Wewoka*
WALKER, A. A. ..... *Wewoka*

SEQUOYAH

MORROW, J. A. ..... *Sallisaw*

STEPHENS

COKER, JOHN K. ..... *Duncan*
GARRETT, S. S. ..... *Duncan*
IVY, WALLIS S. ..... *Duncan*
KING, E. G. ..... *Duncan*
McCLAIN, W. Z. ..... *Marlow*
McMAHAN, A. M. ..... *Duncan*
PATTERSON, J. L. ..... *Duncan*
RICHARDSON, R. W. ..... *Duncan*
SMITH, L. P. ..... *Marlow*
TALLEY, C. N. ..... *Marlow*
THOMASSON, E. B. ..... *Duncan*
WALKER, W. K. ..... *Marlow*
WATERS, CLAUDE B. ..... *Duncan*
WEEDN, A. J. ..... *Duncan*

TEXAS

BLACKMER, L. G. ..... *Hooker*
BLUE, JOHNNY A. ..... *Guymon*
HALL, HARRY B. ..... *Boise City*
HAYES, R. B. ..... *Guymon*
HEADY, E. E. ..... *Goodwell*
LEE, DANIEL S. ..... *Guymon*
MacLEOD, D. R. ..... *Hooker*
OBERMILLER, R. G. ..... *Texhoma*
SMITH, MORRIS ..... *Guymon*
THURSTON, HARRY E. ..... *Texhoma*

TILLMAN

ALLEN, C. C. ..... *Frederick*
ARRINGTON, J. E. ..... *Frederick*
BACON, O. G. ..... *Frederick*
BOX, O. H., JR. ..... *Grandfield*
CHILDERS, J. E. ..... *Tipton*
COLLIER, E. K. ..... *Frederick*
DAVIS, W. W. ..... *Nocona, Texas*
FISHER, R. L. ..... *Frederick*
FOSHEE, W. C. ..... *Grandfield*
FRY, F. P. ..... *Frederick*
FUQUA, W. A. ..... *Grandfield*
OSBORN, JAMES D. ..... *Frederick*
SPURGEON, T. F. ..... *Frederick*

TULSA

ADAMS, R. M. ..... 501 *N. Boulder*
ALLEN, V. K. ..... *Medical Arts Bldg.*
ARMSTRONG, O. C. ..... *Medical Arts Bldg.*
ATCHLEY, R. Q. ..... *Medical Arts Bldg.*
ATKINS, P. N. ..... *Medical Arts Bldg.*
BARHAM, J. H. ..... 314 *Daniels Bldg.*
BEESLEY, W. W. ..... *Medical Arts Bldg.*
BEYER, J. W. ..... 621 *McBirney Bldg.*
BRADFIELD, S. J. ..... *Medical Arts Bldg.*
BRADLEY, C. E. ..... *Medical Arts Bldg.*
BRASWELL, JAMES C. ..... *Medical Arts Bldg.*
BROGDEN, J. C. ..... *Medical Arts Bldg.*
BROWNE, HENRY S. ..... *Medical Arts Bldg.*
BRYAN, W. J., JR. ..... *Medical Arts Bldg.*
CALHOUN, C. E. ..... *Sand Springs*
CALHOUN, W. H. ..... *Medical Arts Bldg.*
CAMERON, PAUL B. ..... *Springer Clinic*
CARNEY, A. B. ..... 402 *Atlas Life Bldg.*
CHALMERS, J. S. ..... *Sand Springs*
CHILDS, D. B. ..... 1226 *S. Boston*
CHILDS, H. C. ..... 1226 *S. Boston*
CHILDS, J. W. ..... 1226 *S. Boston*
CLINTON, FRED S. ..... 117 *N. W. Third*
CLULOW, GEORGE H. ..... 1307 *S. Main*
COHENOUR, E. L. ..... *Medical Arts Bldg.*
COOK, W. ALBERT ..... *Medical Arts Bldg.*
COULTER, T. B. ..... 1011 *Medical Arts Bldg.*
CRAWFORD, WILLIAM S. *Nat'l Bank of Tulsa Bldg.*
CRONK, FRED Y. ..... *Medical Arts Bldg.*
DAILY, R. E. ..... *Bixby, Okla.*
DAVIS, A. H. ..... 710 *Medical Arts Bldg.*
DAVIS, G. M. ..... *Bixby, Okla.*
DAVIS, T. H. ..... *Medical Arts Bldg.*
DEAN, W. A. ..... *Medical Arts Bldg.*
DUNLAP, ROY W. ..... *Medical Arts Bldg.*
EADS, C. H. ..... *Medical Arts Bldg.*
EDWARDS, D. L. ..... 203 *Philcade Bldg.*
EVANS, HUGH J. ..... *Medical Arts Bldg.*
EWELL, WILLIAM C. ..... 1307 *S. Main*
FARRIS, H. LEE ..... 303 *Medical Arts Bldg.*
FLACK, F. L. ..... *Nat'l Bank of Tulsa Bldg.*
FORD, R. B. ..... 305 *Braniff Bldg.*
FULCHER, JOSEPH ..... *Medical Arts Bldg.*
GARRETT, D. L. ..... *Medical Arts Bldg.*
GILBERT, J. B. ..... 307 *Braniff Bldg.*
GODDARD, R. K. ..... *Skiatook, Okla.*
GOODMAN, SAMUEL ..... *Medical Arts Bldg.*
GORRELL, J. F. ..... *Medical Arts Bldg.*
GRAHAM, HUGH C. ..... 1307 *S. Main*
GREEN, HARRY ..... *Medical Arts Bldg.*
GROSSHART, PAUL ..... *Medical Arts Bldg.*
HARALSON, C. H. ..... *Medical Arts Bldg.*
HARDMAN, T. J. ..... *Medical Arts Bldg.*
HARRIS, BUNN ..... *Jenks, Okla.*
HAYS, LUVERN ..... *Medical Arts Bldg.*
HENDERSON, F. W. ..... 315 *Medical Arts Bldg.*
HENRY, G. H. ..... *Medical Arts Bldg.*
HOKE, C. C. ..... 207 *Philtower Bldg.*
HOOVER, W. D. ..... 201 *Philcade Bldg.*
HOTZ, CARL J. ..... *Springer Clinic*
HOUSER, M. A. ..... *Beacon Life Bldg.*

HUBER, W. A. ..... *Medical Arts Bldg.*
HUDSON, DAVID V. ..... *Medical Arts Bldg.*
HUDSON, MARGARET G. ..... *Medical Arts Bldg.*
HUMPHREY, B. H. ..... *Sperry, Okla.*
HUTCHISON, A. ..... *Bixby, Okla.*
HYATT, E. G. ..... *Springer Clinic*
JOHNSON, R. R. ..... *Sand Springs, Okla.*
JONES, WILLIAM M. ..... *Medical Arts Bldg.*
KEMMERLY, H. P. ..... *Medical Arts Bldg.*
KRAMER, ALLEN C. ..... *Medical Arts Bldg.*
LARRABEE, W. S. ..... *Medical Arts Bldg.*
LAYTON, O. E. ..... *Collinsville, Okla.*
LEE, J. K. ..... 214 *Medical Arts Bldg.*
LeMASTER, D. W. ..... *Medical Arts Bldg.*
LHEVINE, MORRIS B. ..... *Medical Arts Bldg.*
LONEY, W. R. R. ..... *Medical Arts Bldg.*
LOWE, J. O. ..... 402 *Atlas Life Bldg.*
LYNCH, THOMAS J. ..... 201 *Philcade Bldg.*
MacDONALD, D. M. ..... 1729 *S. Utica*
MacKENZIE, IAN ..... 511 *Medical Arts Bldg.*
MARGOLIN, BERTHA ..... *Medical Arts Bldg.*
MARKLAND, J. D. ..... *Medical Arts Bldg.*
MAYGINNIS, P. H. ..... *Palace Bldg.*
McDONALD, J. E. ..... *Medical Arts Bldg.*
McGILL, RALPH A. ..... *Medical Arts Bldg.*
McKELLAR, MALCOLM ..... *Springer Clinic*
McQUAKER, MOLLY ..... 1648 *E. 13th St.*
MILLER, GEORGE H. ..... 206 *Atlas Life Bldg.*
MISHLER, D. L. ..... *Springer Clinic*
MITCHELL, THOMAS HALL *Nat'l Bank of Tulsa Bldg*
MOHRMAN, S. S. ..... 611 *Daniels Bldg.*
MUNDING, L. A. ..... *Medical Arts Bldg.*
MURDOCK, H. D. ..... *Medical Arts Bldg.*
MURRAY, SILAS ..... *Medical Arts Bldg.*
MYERS, F. C. ..... 205 *Daniels Bldg.*
NEAL, JAMES H. ..... 1944 *N. Denver Place*
NELSON, F. J. ..... *Medical Arts Bldg.*
NELSON, F. L. ..... 607 *Atlas Life Bldg.*
NELSON, I. A. ..... *Medical Arts Bldg.*
NELSON, M. O. ..... *Medical Arts Bldg.*
NESBITT, P. P. ..... *Medical Arts Bldg.*
NORMAN, G. R. ..... 17½ *N. Lewis*
NORTHRUP, L. C. ..... 1307 *S. Main*
PAVY, C. A. ..... *Medical Arts Bldg.*
PEDEN, JAMES C. ..... 612 *Medical Arts Bldg.*
PERRY, HUGH ..... 804 *Atlas Life Bldg.*
PERRY, J. C. ..... 808 *Medical Arts Bldg.*
PIATT, A. D. ..... *Newark, Ohio*
PIGFORD, A. W. ..... *Medical Arts Bldg.*
PIGFORD, R. C. ..... *Medical Arts Bldg.*
PITTMAN, COLE D. ..... *Broken Arrow, Okla.*
PORTER, H. H. ..... *Medical Arts Bldg.*
PRICE, H. P. ..... *Medical Arts Bldg.*
RAY, R. G. ..... 402 *Atlas Life Bdlg.*
REESE, K. C. ..... *Medical Arts Bldg.*
REYNOLDS, J. L. ..... 912 *Palace Bldg.*
RHODES, R. E. L. ..... 509 *Medical Arts Bldg.*
ROGERS, J. W. ..... *Medical Arts Bldg.*
ROTH, A. W. ..... *Medical Arts Bldg.*
RUPRECHT, H. A. ..... *Springer Clinic*
RUPRECHT, MARCELLA ..... *Springer Clinic*
RUSHING, F. E. ..... 505 *Medical Arts Bldg.*
RUSSELL, G. R. ..... *Springer Clinic*
SCHRECK, PHILIP M. ..... *Medical Arts Bldg.*
SEARLE, MAURICE J. ..... *Medical Arts Bldg.*
SHAPIRO, DAVID ..... *Atlas Life Bldg.*
SHEPARD, R. M. ..... *Medical Arts Bldg.*
SHEPARD, S. C. ..... *Medical Arts Bldg.*
SHERWOOD, R. G. ..... 712 *Wright Bldg.*
SHIPP, J. D. ..... *Medical Arts Bldg.*
SHOWMAN, W. A. ..... *Medical Arts Bldg.*
SIMPSON, CARL F. ..... *Medical Arts Bldg.*
SINCLAIR, F. D. ..... *Springer Clinic*
SISLER, WADE ..... *Mercy Hospital*
SMITH, D. O. ..... *Springer Clinic*
SMITH, NED R. ..... *Medical Arts Bldg.*
SMITH, ROY L. ..... *Medical Arts Bldg.*
SMITH, RURIC N. ..... *Medical Arts Bldg.*
SMITH, W. O. ..... 203 *Philcade Bldg.*
SPANN, LOGAN A. ..... 204 *Braniff Bldg.*
SPRINGER, M. P. ..... *Springer Clinic*
STALLINGS, T. W. ..... 724 *S. Elgin*
STEVENSON, JAMES ..... *Medical Arts Bldg.*
STEWART, H. B. ..... 2500 *E. 27th Place*
STUART, FRANK A. ..... *Medical Arts Bldg.*
STUART, LEON H. ..... *Medical Arts Bldg.*
SUMMERS, C. S. ..... 611 *Daniels Bldg.*
SWANSON, K. F. ..... *Springer Clinic*
TRAINOR, W. J. ..... *Medical Arts Bldg.*
TURNBOW, W. R. ..... *Medical Arts Bldg.*
UNDERWOOD, D. J. ..... *Medical Arts Bldg.*
UNDERWOOD, F. L. ..... *Medical Arts Bldg.*
UNGERMANN, A. H. ..... *Medical Arts Bldg.*
VENABLE, S. C. ..... 1135 *S. Quaker*
WALKER, WILLIAM A. ..... 322 *Kennedy Bldg.*
WALL, GREGORY A. ..... *Medical Arts Bldg.*
WARD, B. W. ..... *Wright Bldg.*
WEST, T. H. ..... *Medical Arts Bldg.*
WHITE, ERIC M. ..... *Medical Arts Bldg.*
WHITE, N. S. ..... *Medical Arts Bldg.*
WHITE, PETER COPE ..... *Medical Arts Bldg.*
WILEY, A. RAY ..... *Medical Arts Bldg.*
WOOD, W. M. ..... 15 *W. 13th St.*
WOODSON, FRED E. ..... *Medical Arts Bldg.*
ZINK, ROY ..... 808 *Daniels Bldg.*

WAGONER

BATES, S. R. ..... *Wagoner*
CRANE, FRANCIS S. ..... *Wagoner*
PLUNKETT, J. H. ..... *Wagoner*
RIDDLE, H. K. ..... *Coweta*

WASHINGTON-NOWATA

ATHEY, J. V. ..... *Bartlesville*
BEECHWOOD, E. E. ..... *Bartlesville*
CHAMBERLIN, E. M. ..... *Bartlesville*
COLLETTE, E. L., JR. ..... *Dewey*
CRAWFORD, HORACE G. ..... *Bartlesville*
CRAWFORD, JOHN E. ..... *Bartlesville*
DAVIS, KIEFFER D. ..... *Nowata*
DORSHEIMER, GEORGE V. ..... *Dewey*
ETTER, FORREST S. ..... *Bartlesville*
GENTRY, RAYMOND C. ..... *Bartlesville*
GREEN, OTTO I. ..... *Bartlesville*
HUDSON, LAWRENCE D. ..... *Dewey*
KINGMAN, WILLIAM H. ..... *Bartlesville*
KURTZ, R. L. ..... *Nowata*
LANG, S. A. ..... *Nowata*
LeBLANC, WILLIAM ..... *Ochelata*
PARKS, SETH M. ..... *Bartlesville*
REWERTS, FRED C. ..... *Bartlesville*
ROBERTS, S. P. ..... *Nowata*
RUCKER, RALPH W. ..... *Bartlesville*
SCOTT, M. B. ..... *Delaware*
SHIPMAN, WILLIAM H. ..... *Bartlesville*
SMITH, JOS. G. ..... *Bartlesville*
SOMERVILLE, OKEY S. ..... *Bartlesville*
STAVER, BENJAMIN F. ..... *Bartlesville*
TORREY, JOHN P. ..... *Bartlesville*
VANSANT, JAMES P. ..... *Dewey*
WEBER, HENRY C. ..... *Bartlesville*
WEBER, SHERWELL G. ..... *Bartlesville*
WELLS, CEPHAS J. ..... *Bartlesville*
WORD, LEE B. ..... *Bartlesville*

WASHITA

BENNETT, D. W. ..... *Sentinel*
BUNGARDT, A. H. ..... *Cordell*
DARNELL, E. E. ..... *Colony*
HARMS, J. H. ..... *Cordell*
JONES, J. PAUL ..... *Dill*
LIVINGSTON, L. G. ..... *Cordell*
McMURRY, JAMES F. ..... *Sentinel*
NEAL, A. S. ..... *Cordell*
TRACY, C. M. ..... *Sentinel*
WEAVER, E. S. ..... *Cordell*
WEBER, A. ..... *Bessie*

WOODS

BENJEGERDES, THEODORE D. ..... *Beaver*
CHEATWOOD, W. R. ..... *Alva*
CLAPPER, E. P. ..... *Waynoka*

DOUGAN, A. L. ..... *Carmen*
ENSOR, DANIEL BOY ..... *Hopeton*
GRANTHAM, ELIZABETH ..... *Alva*
HALL, RAY LORMER ..... *Waynoka*
HUNT, ISAAC S. ..... *Freedom*
LaFON, WILLIAM F. ..... *Waynoka*
McGREW, EDWIN A. ..... *Beaver*
ROGERS, CHARLES A. ..... *Marshall*
ROYER, CHARLES A. ..... *Alva*
SIMON, JOHN F. ..... *Alva*
SIMON, WILLIAM E. ..... *Alva*
STEPHENSON, ISHMAEL F. ..... *Alva*
STEPHENSON, W. L. ..... *Aline*
TEMPLIN, OSCAR E. ..... *Alva*
TRAVERSE, C. A. ..... *Alva*

WOODWARD

BELL, J. T. ..... *Woodward*
CAMP, E. F. ..... *Buffalo*
CHUMLEY, C. P. ..... *Supply*
DARWIN, D. W. ..... *Woodward*
DAY, JOHN L. ..... *Supply*
DUER, JOE ..... *Taloga*
DUNCAN, J. C. ..... *Forgan*
ENGLAND, MYRON ..... *Woodward*
FORNEY, C. J. ..... *Woodward*
HILL, H. K. ..... *Laverne*
HILL, T. A. ..... *Seiling*
JOHNSON, H. L. ..... *Supply*
LEACHMAN, THAD C. ..... *Woodward*
NEWMAN, FLOYD ..... *Shattuck*
NEWMAN, M. H. ..... *Shattuck*
NEWMAN, O. C. ..... *Shattuck*
NEWMAN, ROY ..... *Shattuck*
PIERSON, DWIGHT ..... *Buffalo*
ROSE, WALTER L. ..... *Woodward*
RUTHERFORD, V. M. ..... *Woodward*
SILVERTHORNE, C. R. ..... *Woodward*
TEDROWE, C. W. ..... *Woodward*
TRIPLETT, T. BURKE ..... *Mooreland*
VINCENT, DUKE W. ..... *Vici*
WALKER, HARDIN ..... *Rosston*
WILLIAMS, C. E. ..... *Woodward*
WINCHELL, F. Z. ..... *Buffalo*

Summertime Use of Mead's Oleum Percomorphum

During the hot weather, when fat tolerance is lowest, many physicians have found it a successful practice to transfer cod liver oil patients to Mead's Oleum Percomorphum.

Due to its negligible oil content and its small dosage, this product does not upset the digestion, so that even the most squeamish patient can "stomach" it without protest.

There are at least two facts that strongly indicate the reasonableness of the above suggestion: (1) In prematures, to whom cod liver oil cannot be given in sufficient dosage without serious digestive upset, Mead's Oleum Percomorphum is the antiricketic agent of choice. (2) In Florida, Arizona, and New Mexico, where an unusually high percentage of sunshine prevails at all seasons, Mead's Oleum Percomorphum continues increasingly in demand, as physicians realize that sunshine alone does not always prevent or cure rickets.

Mead Johnson & Company, Evansville, Indiana, invite you to send for samples of Mead's Oleum Percomorphum for clinical use during the summer months to replace cod liver oil.

Obstetrics, Gynecology Examinations Set

The next written examination and review of case histories (Part I) of the American Board of Obstetrics and Gynecology for Group B candidates will be held in various cities of the United States and Canada on Saturday, January 4, 1941, at 2:00 p.m. Candidates who successfully complete the Part I examinations proceed automatically to the Part II examinations held later in the year.

Applications for admission to Group B, Part I, examinations must be on file in the Secretary's office not later than October 5, 1940.

The general oral and pathological examinations (Part II) for all candidates (Groups A and B) will be conducted by the entire Board, Meeting at Cleveland, Ohio, immediately prior to the 1941 meeting of the American Medical Association.

After January 1, 1942, there will be only one classification of candidates, and all will be required to take Part I and Part II examinations.

For further information and application blanks, address Dr. Paul Titus, Secretary, 1015 Highland Building, Pittsburgh, (6) Pennsylvania.

First Texas Chemical Company Host to Baylor Graduates

The First Texas Chemical Manufacturing Company served as host to the graduating class of Baylor Medical College at an annual luncheon held at the Baker Hotel in Dallas May 25.

Addresses were made by Dr. Umphrey Lee, President of Southern Methodist University; Dr. Holman Taylor, Secretary of the Texas State Medical Association; and Dr. Tate Miller of Dallas. Dr. J. V. Goode was presented with the Annual, official publication of the University, by Dr. C. E. Carmack, who in turn had been presented by Dr. E. E. Mason, president of the class.

Others at the speakers' table were Mr. Earl V. Smyth, Vice-President of the Board of Trustees of Baylor University; Mr. J. S. Keene, President and General Manager of First Texas Chemical Manufacturing Company; Dr. W. H. Moursond, Dean of Baylor Medical College; Dr. J. B. Hilliard, Medical Director of Baylor Hospital; and Dr. W. H. Cousins, owner and publisher of the Southern Pharmaceutical Journal.

Vitamin Research Awards Given

A prize of $1,000 offered by Mead Johnson and Company for advances in knowledge of the vitamin B complex was awarded at the annual meeting of the American Institute of Nutrition in New Orleans, March 13, for two achievements in investigation.

The recipients were Dr. William H. Sebrell, Jr., National Institute of Health, Washington, D. C., for the discovery of riboflavin and its use in keratitis; and a group from the research laboratories of Merck and Company, Rahway, N. J., for synthesis of vitamin B6, now known as pyridoxine, John C. Keresztesy, Ph.D., Joseph R. Stevens, Ph.D., Stanton A. Harris, Ph.D., Eric T. Stiller, Ph.D., and Karl A. Folkers, Ph.D.

Deadline For Research Applications Set

The Finney-Howell Research Foundation, Baltimore, has announced January 1, 1941, as the closing date for filing applications for 1941 awards in cancer research.

Announcement also was made of a grant of $2,000 to Dr. George O. Gey to carry on his work in cancer at Johns Hopkins University School of Medicine. In addition, seven fellowships for investigation into the cause or causes and the treatment of cancer were renewed by the Foundation at its annual meeting in March and six new fellowships were awarded.

ASSOCIATION ACTIVITIES

Crippled Children's Commission Establishes New Service

The Federal Children's Bureau has recently granted the Oklahoma Commission for Crippled Children funds for the establishment of a rheumatic fever and heart service.

The work was started April 1 and is being carried out through the Department of Pediatrics of the Medical School and Crippled Children's Hospital. Clinics are held each Wednesday morning at the hospital. Each child goes through the general pediatric clinic for a thorough physical examination and then is referred to the heart clinic.

The grant also finances eight beds in the hospital for patients with active infection. When the patients are able to leave the hospital they are sent to their homes or to the foster home for continued care. When able, they are to return to the clinic for another examination. A clinic was held in Tahlequah April 16, and fourteen patients were examined.

Oklahoma is the first state started in the work. Several other states have now completed their organization and are ready to commence. Dr. Betty Huse and Dr. Frances C. Rothert of the Children's Bureau recently visited the clinic to observe the work.

Fifty-Two Are Graduated From University Medical School

Fifty-two students were graduated from the University of Oklahoma School of Medicine with degrees of doctor of medicine in graduation ceremonies June 3 in Norman.

The graduates are: E. Evans Chambers, Ausmon E. Culmer, Jr., Lynn Henry Harrison, Walter Kenneth Hartford, Phillis Emmaline Jones, William George McCreight, Williams David Maril, Warren Edward Richard, George Emery Meador, Jr., Robert Montgomery Mench, Elmer Ridgeway, Jr., Lal Duncan Threlkeld, George William Winkelman, all of Oklahoma City; Byron Wolverton Aycock, Lawton; Gerald Bednar, Chickasha; Spencer Henton Brown, Muskogee; William Howard Cantrell, Edmond; G. Shelton Cash, Lawton; Eugene Newton Davis, Wichita Falls, Texas; James Lowden Dennis, Britton; James Lowell Dixon, Mooreland; George Edward Dodson, Muskogee; Kemp Holman Dowdy, Tahlequah; Gayfree Ellison, Norman; Hugh Harvard Faust, Stillwater; David Fried, Hatfield, Ark.

Dale Allen Garrison; Lloyd Nance Gilliland, Jr., Frederick; James T. Godfrey, Jr., McAlester; Russell Cole Henry, Altus; H. Myles Johnson, Supply; Phillip George Joseph, Bristow; Robert Lewis Kendall, Strong City; Harold Theron Lehmann, Maud; Mason R. Lyons, Nowata; Coye Willard McClure, Hollis; Wiley Thomas McCollum, Waynoka; Robert Harold Mayes, Manitou; Ralph Warren Morton, Hennepin; Iron Hawthorne Nelson, Tulsa; Elder Dunham Padberg, Canton; Clara Frances Palmer, McAlester; Fowler Border Poling, Hollis; Kenneth N. Roberts, Keota; Rene Schnobelen, Mooreland; Milton H. Sebring, Holdenville; Frederick Victor Shadid, Elk City; Leland F. Shryock, Sharron; Frank Herbert Sisler, Bristow; Willard Haynes Smith, Newkirk; Claude Williams, Stigler; Russell H. Wilson, Eldorado.

Second Obstetrics Course Set To Open September 2

Completing the first of a series of post-graduate courses in practical and clinical obstetrics and allied subjects in Oklahoma City June 1, officials of the University of Oklahoma School of Medicine, sponsor of the course, have announced the second course to begin September 2.

Designed to furnish an opportunity for physicians to obtain at a minimum expense and in a minimum period of time a comprehensive review of the fundamentals of practical obstetrics, the course has successfully met its objectives, Dr. Edward N. Smith, director, said. The refresher course is of two weeks duration, and is to be repeated intermittently as circumstances and demand may justify. The Oklahoma State Health Department and the Children's Bureau of the Department of Labor are cooperating with the School of Medicine in sponsoring the course.

To assure personalized instruction, not more than four applicants will be accepted for each course, Dr. Smith pointed out. Registration fee of $25.00 is charged to cover breakage, depreciation on materials used, clerical expense and incidentals, but $10.00 of this is refunded at the completion of the course if there have been no unusual items of breakage or damage.

For additional information, correspondence should be addressed to the Department of Post-Graduate Obstetrics, Room 8, University Hospital, Oklahoma City.

The four-month post-graduate course in obstetrical nursing, which is being conducted by the same sponsors, has been postponed until July 1.

New Ward in Crippled Children's Hospital

A new ward of sixteen beds has been opened in the Crippled Children's Hospital for colored children. Half of the beds are for surgical patients and half for pediatric patients. The age limit in the ward is twelve years.

Dr. Earl D. McBride of Oklahoma City was a guest speaker at the annual session of the Kansas State Medical Society in Wichita May 13 to 16. Dr. McBride's subjects were "The Role of Surgery in Painful Feet," and "Disability Evaluation."

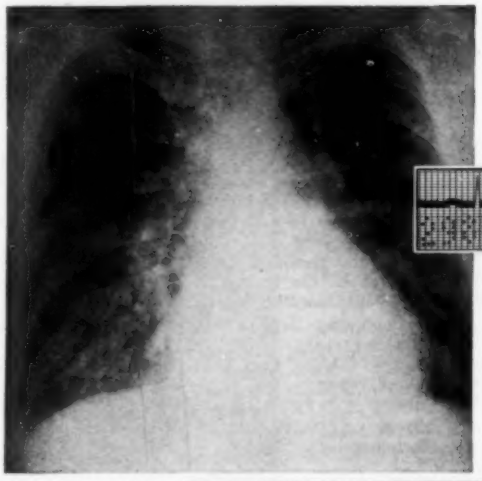
Dr. Raymond L. Murdoch and Dr. John F. Burton, both of Oklahoma City, read papers before the Garfield County Medical Society at its May meeting in Enid. Dr. J. M. Watson and Dr. O. R. Gregg, both of Enid, reported on the annual meeting of the Oklahoma State Medical Association, to which they were delegates.

Eighty-four out of the 117 pre-school children examined during the Parent-Teacher Association's annual health roundup in Ponca City need special medical attention, those in charge have announced.

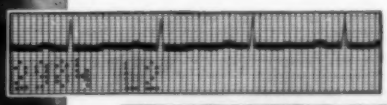
Dr. Hugh Rasmussen of Tacoma, Wash., will become senior physician in charge of the 137-bed Kiowa Indian hospital in Lawton July 1. Dr. Rasmussen will succeed Dr. Earl Jones, senior physician for the last three years, who will go to Tacoma to head the clinical surgery department.

STUDIES IN THE AVITAMINOSES

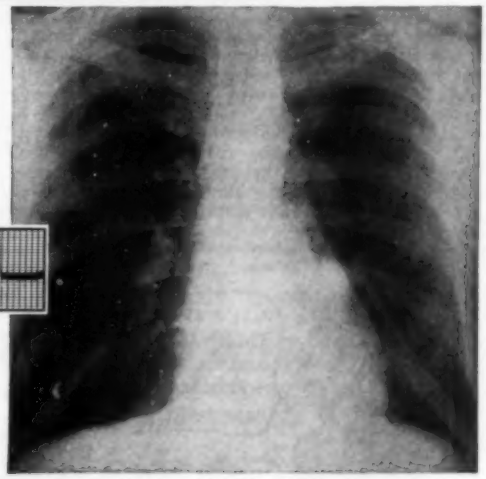
This page is the sixth of a series on vitamin deficiencies presented by the research division of The Upjohn Company because of the profession's widespread interest in the subject. A full color, two-page insert on the same subject appears in the May 25 issue of The Journal of the American Medical Association.



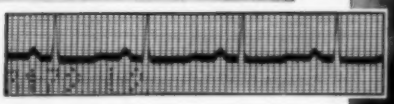
Teleoroentgenogram, at left, of alcoholic patient with severe thiamin deficiency, marked cardiac dilatation, congestive heart failure. X-ray below, taken after three weeks of thiamin chloride therapy, shows marked reduction in cardiac size. Patient received no digitalis.



Electrocardiogram on admission (Lead 2). Note the low voltage of the QRS complexes and of P and T waves. (Left)



After three weeks of thiamin chloride therapy. Note increased voltage, return of P waves. Later tracings showed normal T waves. (Lead 2)



Courtesy of Henry Field, Jr., M.D., University of Michigan.

The Cardiac Manifestations of Vitamin B_1 Deficiency

Vitamin B_1 apparently exerts no specific influence upon the normal heart, but profound deficiency resulting from drastic deprivation may lead to cardiac derangements which are as characteristic as the neural changes at times resulting from thiamin deprivation. In the cases reported, physical examination disclosed that the heart was enlarged to both the right and the left, although on postmortem examination of patients who died of extreme deficiency the enlargement was seen predominantly in the right auricle and ventricle. The former was dilated and paper thin; the wall of the latter appeared thickened and its chamber enlarged. Some difference of opinion exists concerning the mechanism of the increase in cardiac size, since both hypertrophy and edema have been observed by different investigators.

The clinician, through whose courtesy the x-rays and electrocardiograms shown above are made available, states that administration of thiamin chloride promptly led to reduction in the cardiac silhouette.

UPJOHN

News From The State Health Department

The services of Miss Margaret Le Coney, an experienced laboratory technician, are now available to physicians of the state who operate laboratories, Dr. G. F. Mathews, commissioner of the Oklahoma State Health Department announced June 1.

Miss Le Coney came to the Oklahoma Health Department after gaining several years experience in one of the larger clinics in Boston, and for several months was connected with the bacteriological division of the Massachusetts State Health Department Laboratory.

She also served in the United States Public Health Service venereal disease research laboratory at Staten Island, New York.

Arrangements have been completed for Miss Le Coney to work in laboratories of the state for periods of one or two weeks, for the purpose of aiding laboratory technicians in improving methods and techniques.

Her work in laboratories of Oklahoma was made possible by a grant of the Commonwealth Fund of New York City to the Oklahoma State Health Department, Doctor Mathews explained.

Funds for her services were given to the State Health Department, to be administered at the direction of Doctor Mathews.

This work, offered to private physicians who operate laboratories, is part of the program launched several years ago by the Oklahoma State Medical Association and the State Health Department to improve the medical care and services to the people.

Miss Le Coney is now working in the State Health Department laboratories, studying the methods employed there.

Information about her services may be obtained by contacting the State Health Department.

Tularaemia has been reported by private physicians 31 times within the past three months, with six of the cases traced definitely to the bite of a tick, Dr. G. F. Mathews, commissioner of the Oklahoma State Health Department has announced.

"This is the first time Oklahoma has had reports of tularaemia being spread by the bite of a tick, and indicates that although improvement is shown in the reporting of this disease, there is need for even greater attention to this matter," he said.

Tularaemia has been reported throughout the United States. In 1938 there were 2,088 cases with 139 deaths, a majority of those contracting the disease having skinned or handled wild rabbits. In 1939 the United States had 2,200 cases reported, with approximately 150 deaths expected when reports are completed. Over 90 per cent of the cases in the United States can be traced to the rabbit.

The disease, coming from the bite of a tick usually found on rabbits, commonly occurs in Oklahoma when the hunting season opens, and declines as the season closes. Oklahoma has had one death from tularaemia reported this spring.

An important factor in this respect is that the eastern, wooded area of the state has had most of the cases, LeFlore county leading with four reported.

(The following lists the counties, number of cases and dates reported)

County	No. Cases	Date
Craig	1	5-25
Ottawa	1	5-3
Mayes	2	3-7; 4-16
Cherokee	1	5-24
Muskogee	1	6-1
LeFlore	1	5-1; 5-1; 5-11; 5-21

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McCurtain	1	3-7
Johnston	3	5-1; 5-19; 5-19
Payne	1	5-4
Oklahoma	1	4-6
Canadian	2	3-23; 3-3
Stephens	3	5-25; 4-16; 5-7
Custer	1	5-19
Woodward	1	5-7

(Other case reports taken from laboratory reports)

A study of the case reports shows that eight of them were people who had handled or skinned rabbits. Six were from the tick bite and the remaining 17 reports gave no information as to the source. "It is reasonable to assume that several of these 17 cases were due to the bite of a tick," Doctor Mathews stated.

Incomplete classification as to occupation showed that three Oklahoma farmers contracted tularaemia from the bite of a tick and one from handling a rabbit, while others infected from a rabbit included housewives, students and children.

Over half of the 31 cases were reported in May, indicating further activity of the tick.

First described in 1910, knowledge of tularaemia is the result of American research, and the disease is most prevalent among marketmen, hunters, housewives and others who dress rabbits with their bare hands.

Research has shown that tularaemia comes from the bite of a tick which may be found on wild rabbits, deer flies, horse flies, wood ticks and from streams or creeks which have been contaminated by water rats.

The state health department has laboratory facilities available for aid in diagnosing tularaemia.

"Whether or not the incidence of tularaemia is on the increase in Oklahoma cannot be determined, but the fact that six cases have been definitely traced to the bite of a tick shows that physicians are discovering the disease, and that it bears watching in this state," Doctor Mathews said.

• *OBITUARIES* •

Dr. J. C. Luster

Death came to Dr. J. C. Luster, pioneer Davis, Okla., physician, May 17 at his home in Davis following a heart attack. He was 64 years of age at the time of death.

Doctor Luster came to Davis on May 2, 1898, and was the oldest practicing physician in Murray County in point of years of service.

Survivors include Mrs. Luster; two daughters, Dorothy and Boyd Luster of Davis; two sisters, Mrs. Lula B. Dillon of St. Louis, Mo., and Mrs. Lillie Hancock of Dixon, Mo.; and one brother, Edgar Luster of Belle, Mo.

Funeral services were conducted from the Davis Christian church, of which he was a charter member, at 3:30 o'clock Sunday afternoon, May 19. Interment was in the Green Hill cemetery at Davis.

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*"Treatment of Acute Anterior Urethritis with Silver Picrate," Knight and Shelanski, AMERICAN JOURNAL OF SYPHILIS, GONORRHEA AND VENEREAL DISEASES, Vol. 23, No. 2, pages 201-206, March, 1939.

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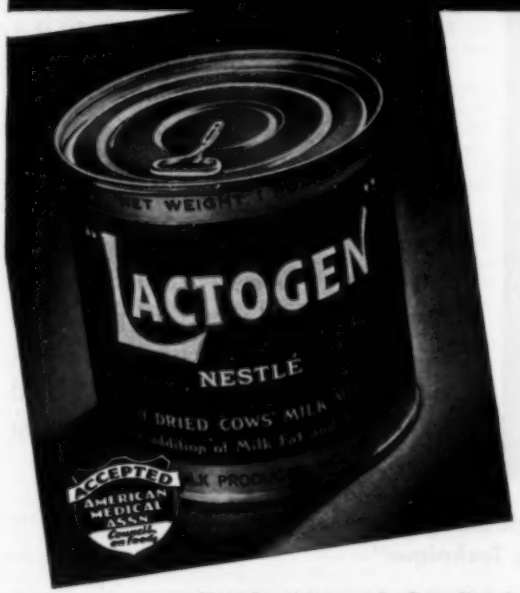

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ABSTRACTS : REVIEWS : COMMENTS and CORRESPONDENCE

SURGERY AND GYNECOLOGY

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"The Treatment of Spontaneous, Threatened, or Habitual Abortion." By Conrad G. Collins, M.D., F.A.C.S., John C. Weed, B.S., M.D., and Jason H. Collins, B.S., New Orleans, Louisiana. Surgery Gynecology and Obstetrics, Volume 70, Number 4, April 1940, Page 783.

The authors begin by citing evidence to show that threatened or habitual abortion may be successfully treated with the anterior pituitary-like hormone or corpus luteal hormone, thyroid extract, and vitamin E.

The authors use wheat germ oil as a source of vitamin E. They have used it in the treatment of 36 cases of spontaneous, threatened, or habitual abortions, in combination with the anterior pituitary-like hormone, progesterone, and thyroid extracts. The daily maintenance dose ranged from 1 to 1½ drams unless the patient began to show signs of threatened abortion or showed signs of threatened abortion when first seen. Eight to twelve drams were given during the first 24 hours to these patients, and then the patients were placed on the daily maintenance dose. Oil was given until the patient reached 8 to 8½ calendar months pregnancy.

The anterior pituitary-like hormone in the form of antuitrin S was administered intramuscularly in 1 cubic centimeter doses at weekly intervals until the patient was pregnant 4 to 4½ calendar months.

One rabbit unit of progesterone was administered intramuscularly when cramping or bleeding was actually present. Upon cessation of these symptoms, progesterone was discontinued and antuitrin S instituted.

Thyroid extract in 1/10 to ½ grain doses twice a day was given to all patients showing evidence of hypothyroidism.

Cases were classified as "threatened abortion" if cramping pain in lower abdomen persisted longer than 24 hours or if a patient had any bleeding. Cases were classified as "habitual abortion" if patient had 2 or more spontaneous abortions.

Of 24 cases of threatened abortion treated as mentioned above, only 3 aborted. This represents a successful arresting of the abortion of 87% of these cases.

Of 12 cases of habitual abortion 9 have been delivered of normal, full term, healthy infants. Of the 3 who aborted, 1 was precipitated by an attack of malaria, and 1 was a missed abortion and really had a dead fetus when the treatments began. These 12 cases, prior to treatment, had a total of 21 pregnancies with only 3 births. With therapy, the same group, in 12 pregnancies delivered 9 full term, living children.

It is interesting to note that 3 of the patients stopped taking the wheat germ oil of their own accord and even though they were on maintenance doses of thyroid and progestin, they promptly began to abort, but on resumption of vitamin E therapy, cramping and bleeding ceased and the pregnancies proceeded with no further return of symptoms.

Warren Poole.

"Ectopic Pregnancy." Hilliard E. Miller, M.D., F.A.C.S. The American Journal of Surgery. April 1940, Volume XLVIII, No. 1, Page 47.

This study is a review of all cases of ectopic pregnancy which occurred in Touro Infirmary, New Orleans, from 1924 to 1936. However, in order to obtain a more accurate relationship of extra uterine to uterine pregnancies, cases were added from six other New Orleans hospitals and an estimate of one ectopic in ever 171 pregnancies was made.

In considering the eventual termination of any extra-uterine pregnancy, three essential possibilities can occur: (1) Early death of fertilized ovum with complete resorption. (2) Development of fetus to term or advanced state with possibility of delivery by laporatomy or death followed by suppuration, skeletonization, lithopedion formation or saponification. (3) Rupture. If rupture results, three developments may take place: (1) Death of the embryo; (2) Reimplantation of embryo; (3) The placental attachment may survive at primary site, and the fetus continue to develop in a new position.

Regardless of manner of rupture or variety of ectopic pregnancy involved, there is almost universal hemorrhage into the peritoneal cavity of the mother. If the hemorrhage is profuse, exsanquination of the patient prevents the occurrence of further changes. If the hemorrhage is slow, an irritative, plastic peritonitis is incited, with a resulting hematocele.

Before rupture occurs, there are no symptoms other than those of early pregnancy, and a diagnosis of an early unruptured ectopic pregnancy is pure luck.

When rupture does occur, the history is very important in making a correct diagnosis. Usually there will have been a period of amenorrhea or delayed menstruation followed by spotting or vaginal bleeding which is not in rhythm with the normal menstrual cycle and which is most often dark brown or black in color.

Pain in the pelvis, usually recurring in cycles, is next most important point in history. It may be severe and lancinating or may resemble menstrual cramps. Radiation of pain to the thighs, back, and chest has been noted. Thirty-six percent of the cases felt fainty or did faint at onset of pain. Thirty per cent were in shock at the time of operation. Nausea or vomiting with onset of pain was present in 40% of the cases.

On examination, the most universal finding was tenderness in lower abdomen which was present in 81% of the cases. Rigidity was found in only 41.6 per cent and there was a palpable mass in 39% of the cases.

The statement is often found in literature that a relative sterility of long duration usually precedes the development of ectopic pregnancy. This is not borne out in the present study, for 62 of the 137 women were found to have been previously pregnant.

In 65 of the 137 cases, (47.2 per cent) a correct diagnosis was made. In 32 cases (23.5 per cent) ectopic was suspected, and in 40 cases (29.3 per cent) the diagnosis was entirely erroneous.

All cases of ectopic pregnancy should be subjected to operation as soon as possible after a diagnosis has been made. There is no such thing as expectant treatment for extra-uterine gestation because the prognosis becomes more serious the longer the operation is delayed. Parry collected records in 500 cases of ectopic pregnancies with 386 deaths. Of the deaths 174 or 52.8 per cent resulted from hemorrhage. Of these 174, duration of life is mentioned in 113. Of these 113, 71.7 per cent were dead in 24 hours and only 13 per cent were alive after 48 hours. These figures alone should impress one with the necessity for haste in the treatment of this condition.

No time should be wasted before surgery by transfusion or infusion in an attempt to rally these patients.

Such procedures can be carried out during an operation with greater benefit to the patient.

No more surgery should be done than is absolutely necessary to insure a primary postoperative recovery. Under no circumstance should a chronic appendix be removed, the uterus suspended, or the abdomen explored. The extravasated blood is best left in the patient's abdomen, for it is eventually absorbed, and any attempt to remove it prolongs the operation.

Mortality in any condition is dependent upon the skill of the physician, but it is estimated that the average mortality in the better hospitals is about 4% or under. In this series of 137 cases there were 3 deaths with a mortality rate of 3.6 per cent.

Warren Poole.

"The Relative Value of Catgut, Silk, Linen, and Cotton as Suture Materials." By William H. Meade, M.D., Jackson, Michigan, and Alton Ochsner, M.D., New Orelans, Louisiana, "Surgery", April, 1940, Volume 7, No. 4, Page 485.

This article is based upon an extensive investigation of the kinds of suture material indicated in the title. The purposes and scope of the investigation are indicated by this statement: "Because there had been no comprehensive comparative appraisal of a large number of suture materials, the present study was undertaken in order to evaluate the efficiency of catgut, silk, linen, and cotton."

As long ago as 1869 Lister discontinued the use of catgut because he was apparently under the impression that it predisposed to infection.

It appears that the fear of nonabsorbable suture material is associated with the fear that such a suture and this fear appears to be associated with the emphasis and this fear appears to be associated by the emphasis placed upon the presence of "foreign bodies," reported by pathologists to have been found in un-healed operative wounds.

There appears to have been much uncertainty and misunderstanding until the investigations and works of Kocher and Halsted in the 1880's. The work of Kocher and Halsted appeared to demonstrate the superiority of silk over catgut as suture material. Notwithstanding it has been between 50 years and 60 years since then, the question has not been settled in the mind of the average surgeon.

"It has been the opinion of most surgeons that the persistence of a suture after wound healing is detrimental and that in the presence of infection it alone is responsible for continuation of the infection." The authors, through their investigation, undertake to show that this opinion is erroneous. Based upon the results of their own investigations, coupled with the much earlier work of Kocher, Halsted, Whipple, Shambaugh, Howes and Harvey, it is believed that wound healing in the presence of catgut is definitely retarded, due to moisture, swelling, and premature absorption which is frequently associated with allergic situations in connection with certain individual patients. At the same time, there is a period of several days when there is relative weakness of the catgut sutures, and this relative weakness in connection with the conptated wounds continues until the operative area is penetrated by fibroplasts, which grow into the area some days after the performance of the operation.

The authors have this to say about silk: "Silk should be clased as a nonabsorbable suture, although it is mainly protein. It is pliable, easily sterilized, and, when not serum-proofed or waxed, contains no chemical other than an iron dye."

"Whereas silk is mentioned in some of the earliest medical writings, by Celsus, Galen, and later Trotuia (A. D. 1050), it was not until 1888 that silk came into more general use because Kocher had so many infections with catgut." Halsted began the use of silk in this country about the same time.

It is indicated that silk is easily sterilized, that it is easy to handle, and that the knots are more stable than in the case of catgut.

There is reference to reports in the continental literature about a post operative difficulty in which there is a low grade inflammatory tumor at the site of operation. This was described by Schloffer in 1908. "The tumor may occur from months to years after the implantation of the silk and is cured by the removal of the silk from the center of the tumor." Whipple is quoted as suggesting that the tumor is the result of the use of too heavy silk.

It appears that linen, which is derived from flax, has been employed as suture material since the time of Antyllus (A. D. 200), but it was not used with uniformity. "About 1865, Pagenstecher, a German ophthalmologist, prepared linen by treating it with a celluloid solution. This made a much more pliable suture, giving considerable less friction and less serum absorption." The authors indicate that this is a very satisfactory type of suture material.

There is a very interesting discussion of suture materials derived from cotton, and two of the advantages are that cotton is easily obtainable, cheap, and, like silk, can be sterilized with heat without interferring with the efficacy of the suture material. It is indicated that the most satisfactory type of cotton thread is made from the long fibre Egyptian, or Sea Island cotton.

"Although cotton has been used as a ligature material by Gage, of Tulane University, and by Guerry, of Columbia, S. C., it has not been used for the major portion of their surgery. However, the experimental and clinical uses of this material were encouraged by seeing Gage use it frequently as a ligature."

The experimenters found that the tensile strength of linen and silk of the same size was about the same. The tensile strength of cotton is not as great as that of silk and linen, and sterilization by boiling reduces the tensile strength about 11%.

Sutures employed in experimental animals (rabbits) were removed after two, four, seven, ten, and fourteen days respectively. "Following removal they showed a decrease in tensile strength — except that the tensile strength of the cotton remained practically the same as that of the original suture." There was a loss of 20% in the tensile strength in four days, and the loss increased rapidly during the next few days. There was a loss of 30% of tensile strength in chromic catgut in four days, and a rapid reduction to a 50% decrease in seven days. The loss of tensile strength in silk was about the same as that of chromic catgut. The following is a very interesting and practical statement: "A cotton suture, No. 50 plain thread, remaining in human tissue (split skin graft) for a period of eighteen days showed only a 10% loss in strength."

After 48 hours, "There were moderate inflammatory reactions in the cutaneous tissues about both plain and chromic catgut, the latter being somewhat more pronounced than the former. The edema was much greater than that surrounding silk and cotton sutures." To sum up: "There were moderate inflammatory reactions, considerable swelling of the suture, and considerable edema about the linen sutures." In the neighborhood of the silk and cotton sutures, "There was slight edema, but no gross inflammatory change."

Comments: There are several important conclusions to be drawn from this remarkable report. First, the almost universal employment of catgut as suture material does not rest upon a basis that is altogether sound. Second, it is new and scientific support for the employment of silk, linen and cotton. Third, the experiment touching the employment of cotton sutures are of tremendous scientific and practical value. In emergencies, the average surgeon has had to resort to the employment of ordinary cotton thread taken out of the housewife's workbasket. If the material is sterilized by boiling, and other necessary surgical technique is applied, he is often gratified to see satisfactory healing of the wound and progress of the patient.

This is the type of article that should be preserved. It is comprehensive and entirely practical at the same

time. One of the valuable features is that the article is followed by a good bibliography.

LeRoy Long, Sr.

EYE, EAR, NOSE AND THROAT

Edited by Marvin D. Henley, M. D.
911 Medical Arts Building, Tulsa

"Post-Cataract Hyphemia." A. Seymour Philips, F.R.C.S., London, England. Abstracted from the British Journal of Ophthalmology, March, 1940 and published in the May edition of the Digest of Ophthalmology and Otolaryngology.

Post-cataract Hyphemia has long been one of the bugbears of ophthalmic surgery, for though it does not often affect the ultimate visual result, it prolongs the patient's stay in hospital sometimes for several weeks. In an endeavor to ascertain the origin and fate of the blood in these patients I have collected and recorded 49 cases of hyphemia that occurred in the wards of two London Hospitals during the years 1937 and the greater part of 1938.

It was noticed that whatever the origin of the blood it is unaffected by the type of operation performed. If as has been frequently stated, the blood comes from the iris one would surely have expected a higher difference than 0.7 per cent between those cases where it was cut and those where it was not.

It is apparent that hyphemia can be divided into three groups.

1. Those occurring at the time of operation, probably from the conjunctival flap. It has often been noticed that hyphemia absorbs very rapidly and unless it is very large will have disappeared by the time the first dressing is done 48 hours later. In this survey I have included only those cases which persisted at the first dressing or occurred at a subsequent date and therefore very few of this type are mentioned in this paper.

2. Those occurring for the first time several weeks after the operation concurrently with an attack of iritis. They are prone to recur at frequent intervals and have a different origin from the next group.

3. Forty-two out of forty-nine cases fell into this group. They have the following characteristics: (a) they are not present when the patient leaves the operating table, (b) they occur between the second and the tenth days, and almost invariably between the second and sixth, (c) it is only very rarely that more than one single hemorrhage occurs, and the eye is usually free from blood in 2 to 3 weeks.

I have no doubt that those cases classed in Group 2 are inflammatory in nature and arise from the iris. In the remainder of this paper I am referring to group 3 unless otherwise stated.

HISTORY OF OCCURRENCE.—Ten patients gave a history of physical violence to the eye. In most cases this consisted of knocking the eye with the hand—usually on first waking up. This would be followed by a complaint of pain in the eye and on inspection a hyphemia was found.

Fifteen patients volunteered some such information as "I went back with rather a bump and after that my eye was painful." Or "I had an attack of sneezing, doctor." Or "I woke up with a start and my eye was painful."

In the remaining 17 patients the blood was found at a routine dressing and no complaint of pain was forthcoming from the patient unless perhaps following a leading question.

So that in spite of the fact that the patient or the nursing staff is often blamed for the trouble, in less than a quarter of the cases was there any evidence of a knock which might perhaps have been prevented by wearing a shield or tying the patient's hands.

TIME OF OCCURRENCE.—No case occurred before the second day, or after the tenth. The average for all cases was 3.7 days.

With regard to the disappearance of clots in the anterior chamber, I believe that the fibrin of the clot is dissolved by the aqueous humour and the cells are thus set free to be absorbed into the crypts of the iris, the aqueous having no direct action on them. I do not know how long it is possible for cells to remain intact in the A.C., but I have washed them out and examined them after they have been present for seven weeks and have found them intact.

ORIGIN OF THE BLOOD.—There are three sources from which it is possible for blood to enter the A.C., (a) the conjunctival flap, (b) the healing section and (c) the iris and ciliary body. Clearly it can only come from the conjunctiva during the operation, from the section while it is healing, but from the iris and ciliary body at any time.

I have assumed that those hemorrhages that occur at operation are mostly conjunctival in origin, while those that occur more than three weeks after operation are from the iris, and thus the real point at issue is the source of the 42 cases that arose between the second and the tenth days. Since it is only very rarely that a hyphemia is seen in the act of formation it follows that the source of the blood must be a matter of deduction from circumstantial evidence.

I believe the manner in which hemorrhage occurs is as follows. Repair of a section takes place by means of blood vessels growing down from the conjunctival and episcreral vessels. Owing to the tension of the eye a cataract section always gaps to some extent, and this gap is made good by young vascular tissue. Should the patient now squeeze his lids, this will cause deformation of the eyeball and separation of the wound edges and thus rupture of the young blood vessels uniting them. When this happens the vessel bleeds, usually in the line of least resistance into the A.C., but occasionally subconjunctivally as well.

Corneosceral Sutures.—After the cases in this paper had been collected corneoscleral sutures were introduced at one of the hospitals where I was working. For a period of six months this stitch was used on every cataract extraction by one of the surgeons, and during this time no single case of post-cataract hyphemia occurred in his cases. The stitch has now been used on over 120 consecutive cases without a hemorrhage.

Regarding the source of the blood, opinion has lately been changing, and while most of the older writers thought that it came from the iris many of the younger ones believe that it comes from the section. The matter is clearly one which it is impossible to decide by examining hospital notes, and I think that when the effect of using corneoscleral sutures becomes more widely

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known, opinion on this matter will become more unanimous than it is at present.

"The Pathology of Thrombo-Phlebitis of the Lateral Sinus." G. Turner. (Bollettino delle Malattie del 'Orecchio, della Gola e del Naso, 1939, lvii, 445.) Abstract published in The Journal of Laryngology and Otology, March, 1940.

The author recalls that the lateral sinus receives blood not only from the longitudinal and straight sinuses but also from four groups of veins. They are:

(a) The veins of the dura mater.
(b) The veins of the diploe.
(c) The transtemporal veins.
(d) The petrosal sinuses.

The blood of the external and middle ears reaches the sinus through the transtemporal veins, that of the internal ear and petrous bone through the petrosal sinuses.

The author disscusses the formation of clots in the sinus and the extent to which they may be spread. He describes experiments where the wall of the sinus has been cauterized giving rise to a mural thrombus. Septic material was applied to such a damaged wall and the clot became infected. The septic material was applied to a non-cauterized sinus wall and a clot was produced in about twenty-four hours. In some cases however, pyaemia occurred without the formation of a clot, evidently by the passage of the organisms straight through the wall into the blood stream. The author discusses at length the treatment of thrombosis of the lateral sinus and has concluded that the clot should always be removed but that it is rarely necessary to ligature the internal jugular vein. This manipulation must however be carried out where there is any sign of pyaemic infection.

"Argyria Resulting From Intranasal Medication." Ben L. Bryant, M.D., Los Angeles, Calif. Published in the April edition of the Digest of Ophthalmology and Otolaryngology 1940. The Original article in Archives of Otolaryngology January 1940.

Despite the warnings that have appeared occasionally in all the literature, many otolaryngologists still deny the danger of the production of generalized argyria from the use of silver-containing intranasal medication.

The physician who has seen even a single victim of full-blown argyrosis, with its typical generalized pigmentation of the skin, giving the patient a bronzed blue or slate color which has been described aptly as the appearance of a corpse suddenly come to life, must necessarily have been impressed with the importance of preventing such a condition. Prevention is actually the only treatment, for, although Stillians and others have shown that by painstaking and multitudinous injections of a 1 per cent solution of potassium ferrocyanide and a 6 per cent solution of sodium thiosulfate in distilled water the skin of the face and neck can be cleared of the pigmentation, a person with the general discoloration due to the distribution of silver will retain it for all his days.

In the earliest cases reported argyria was caused by the internal use of silver nitrate, but as this form of therapy was relinquished the incidence of argyria naturally diminished, until, within the past generation, the use in the nose and throat of medication containing silver was introduced, with the resulting recrudesence of the lamentable condition.

Conscientious observers in the field of otolaryngology can no longer doubt the occurrence of generalized argyria caused by intranasal silver medications, especially in view of the 100 per cent increase in such cases reported during a recent five years. A persistent indifferent attitude to this on the part of otolaryngologists might be condoned if it were possible through the use of such medications to achieve beneficial results for the patient which could not be achieved otherwise, but quite contrary is the case. Hilding, Proetz, Negus and others, through their commendable experimental studies, have brought enlightenment as to the physiology of the nasal mucous membranes, and they have proved the importance of normal ciliary action. The work of Lierle and Moore and of Proetz showed that mild protein silver affects the ciliary beat adversely. In addition, there is an immediate mechanical interference with the highly important streaming of the mucous blanket, caused by the clumping of the drug over the surface. Since the infectious process is beneath the epithelium, it is doubtful that any antiseptic value possessed by the colloidal solutions can compensate for their mechanical disadvantages. The same opinion was expressed by Walsh and Cannon as a result of their investigations, which further showed that neither neosilvol nor argyrol (10 per cent) had any bactericidal effect whatsoever on bronchiectatic pus after forty-four hours, despite the claims of the manufacturers.

"Simple Mastoidectomy, A Critical Analysis of One Hundred Consecutive Cases." Everett H. Tomb, M.D., Framingham, Mass. Archives of Otolaryngology, March, 1940.

The one hundred cases taken were those operated by the author in 1935 and 1936. The technic employed and the postoperative care given were the same in all cases. Numerous charts and tables are included in the report. There is a bibliography. This is a report that has entailed much thought and study. It is well worth one's time to read. The author's own summary is as follows:

Closure of the periosteum aided in the formation of new bone.

The use of noncompression bandages resulted in less postoperative edema of the tissues.

Mastoiditis was most frequent in those between 5 and 10 years of age. Many mothers of such children are believed to have been infected by them.

The frequency of mastoiditis was greatest in February and March and least in August, September and October.

Paracentesis was believed to be advisable.

The optimum time for operation was found to be about the third week of otitis media. Before that there is little localization, while after that, vital visceral structures are most frequently attacked.

In acute mastoiditis superimposed on chronic purulent otitis media, simple mastoidectomy with the removal of all eburnated bone was found to be sufficient.

In recurrent mastoiditis formation of new bone was not found in less than one year after the previous operation.

A revision mastoidectomy was indicated when sepsis with threatening symptoms was present or when faulty healing had occurred.

Cultures of material from the mastoid yielded in 54 per cent of cases a Str. haemolyticus and in 12 per cent a pneumococcus.

Streptococcic infection was associated with fulminating symptoms and numerous complicating lesions, while pneumococcic infection was practically symptomless but caused extensive destruction of bone.

"Chronic Progressive Deafness With Special Reference To Estrogenic Substances." Grant Selfridge, M.D., San Francisco. Annals of Otology, Rhinology and Laryngology, March, 1940.

This is a further discussion of this subject with a detailed report of six cases. Brown says: "The diencephalon has ties in three directions: with the cortex of the brain above; with the pituitary above; and with the sympathetic system." Low metabolic rate due to lack of protein is also a factor. Improvement of low tones can be accomplished by speeding up the metabolic processes with protein, thyroid, estrogen, etc. This article is a valuable resume of this difficult subject including many new ideas as to the cause and treatment of same. The author's own summary is as follows:

1. Estrogenic substances probably play an important role in conduction deafness. Estrogen relieves completely in many cases the tinnitus, menstrual irregularities, and other symptoms occurring during menstruation. Unfortunately, these symptoms recur in many instances when estrogen is discontinued.

2. There is definite evidence that thyroid is of importance and also the pituitary and adrenal cortex in treatment.

3. Thiamin chloride and nicotinic acid are exceedingly helpful as may be other factors of the B2 complex and other vitamins.

4. Neither nerve nor conduction deafness are caused by any single factor but appear to be linked with the various factors related to growth, i. e., endocrine glands, vitamins, mineral salts (the electrolytes) and amino-acids.

5. The evidence, slowly accumulating, points to nutritional deficiencies and the beginnings probably occur during the period of gestation and are due in the main to dietary errors and endocrine disturbances of the pregnant mother. The prevention of deafness, therefore, depends on the mother getting an optimum diet containing all the essential foods during the gestation period, and such dietary habits must be carried on during babyhood, childhood and adolescence.

6. Finally, further work is necessary concerning various factors referred to in this and other papers already published, and especially the nutritional, endocrine and allergic factors that may prove to be related to the enlargement of tonsils and adenoids.

PLASTIC SURGERY

Edited by George H. Kimball, M. D., F. A. C. S.
912 Medical Arts Building, Oklahoma City

"Reconstruction of a Hand and Four Fingers by Transplantation of the Middle Part of the Foot and Four Toes." Johannes F. S. Esser, M.D., Monaco and Pal Ranschburg, M.D., Budapest, Hungary. Annals of Surgery, April, 1940, P. 655.

This is a case of a Hungarian soldier who had a right hand mutilated by a hand grenade in 1917, so that only the thumb, which was rigid, and the root of the hand with a very small part of the metacarpals remained. In that year, all the scar was excised from the injured hand, the remaining metacarpals exposed and the extensor tendons liberated. The right foot was used for a pedicle graft and an incision was made from the web between the great and second toe, which curved proximally to the middle of the foot and then laterally to the lateral margin. The metatarsal bones were resected one inch distal to the skin incision; the extensor tendons, one inch proximal to this incision, leaving the tissues of the plantar surface to serve as a pedical. The pedical was then sutured on to the prepared stump of the hand, using a meticulous technique in approximating all tissues. After four weeks, half the pedicle was cut on the lateral side of the foot and the flexor tissues united. Five days later the remainder of the pedicle was severed and these tissues closed. The author reports that scar tissue penetrated deeply, but precautions were taken so that the junction of the tendons would not be directly under the skin wound.

The final result, twenty years post-operatively, is shown in a cut and has a remarkably esthetic appearance. The hand is perfectly capable of handling objects and is useful in normal occupations. The patient has been able to walk and carry on his normal occupation with the stump of the foot which remains.

The question of spontaneous union of dislocated nerves is discussed by Professor Ranschburg. A very detailed discussion of the sensory and motor responses of the reconstructed hand is given. Professor Ranschburg concludes: "In a word, the 'foot-hand' fulfilled all the ordinary functions of a normal hand, while walking on the remaining part of the right foot was in no way impeded."

Comment: This is a most unusual case of a reconstruction of a hand using a foot, together with the bone, tendon, and nerves. This reconstructed hand has served the patient usefully for twenty years and is a fine example of what meticulous operative technique can accomplish. There is also a fine study dealing with regeneration of nerves. The authors are certainly to be complimented on an unusual and satisfactory reconstruction of a hand which would have otherwise been a total loss.

"Double Elongations of Partially Cleft Palates and Elongations of Palates with Complete Clefts." James Barrett Brown, M.D., F.A.C.S., St. Louis, Surgery Gynecology and Obstetrics, April, 1940, P. 815.

Dr. Brown reviews the elongation of cleft palates and elongation of short palates which he first described in 1936. This is, in principle, the freeing of practically the entire soft tissue of the palate from the bony substance and setting this back to the posterior extremity of the bony plate. This lengthens the palate and mobilizes the soft palate. Observations made since the original publication are summarized:

(1) The author believes that a one stage operation is superior to a delayed flap technique since it prevents thickening of the palate.

(2) Preservation of the major palatine arteries is always possible and freeing is effected by carefully loosening the tissues around the arteries and gently stretching from the foramen. This method seems better than removal of the posterior wall of the major palatine foramen. If the arteries are cut, the delayed flap method of Dorrance should be used for the sake of safety; however, if these have been cut at a previous operation, the advantage of delayed flap has been gained and immedinte set-back can be accomplished.

(3) This method of elongation does not interfere with the sphincteric action of the palate.

(4) Any method in which the posterior pillows are sutured behind the palate to gain length, causes a tight immobile scar with a "drumb-head" quality to the voice.

(5) If a slough of the soft palate from previous operations has occurred, then added to the elongation may be the freeing and suturing of available tissue.

(6) Any type of pharyngoplasty in which there is a reefing forward of the superior constrictor, as described by Wardhill, may be added to the push-back precedure but has not proved successful in the author's hands.

(7) Tooth buds may be damaged if the operation is done too early; therefore, the elongation may be delayed until the second year.

(8) The results of these procedures have shown increasing benefits to the patients, both in speech and in eating.

(9) Failures are to be expected in more difficult patients.

(10) No opening should be left in the anterior palate in order to avoid use of artificial dental obturators.

DOUBLE ELONGATION OF PARTIAL CLEFT PALATES

In some partial cleft palates there is only a narrow ledge of bone just inside the alveolus with corresponding lack of mucoperiosteum with which a closure might be effected. The author's technique in this procedure is to completely outline the available palate, as in the original push-back procedure, to set this tissue back to the posterior limits of the available bony plate. At the second operation, the original line of suture is reopened and the oral nasal leaves of tissue are separated, extreme care being used not to perforate the nasal mucosa. The arteries will have to be sacrificed at this stage. Closure of the cleft may be done at either stage or at a separate procedure. Although the arteries will have to be sacrificed at the second stage, it is not necessary to delay the flap unless a hole has been made into the nose.

ELONGATIONS OF PALATE WITH COMPLETE CLEFT

Following the finding that the nasal mucosa could be saved in double elongations and in palates with submucosa bony cleft, it has been determined that elonga-

tions may be made on complete cleft palates which previously have been repaired. The technique is similar to that described in the double elongation procedure except that more extreme care is needed to avoid perforations into the nose; likewise, as in the preceding procedure, if those perforations do occur, a delay should be used in completing the set-back. The arteries may be sacrificed if necessary and this usually does not require delaying the flap. More difficulties are to be expected in this procedure than in those cases which have a bony division between the nose and mouth cavities.

Comment: This is an excellent article presenting some original ideas, as well as a review of a procedure which is not old, but has established itself in the correction of congenital short palates. The procedure is technical and requires meticulous dissection but offers a definite hope to the individual with a contracted soft palate, which is non-mobile and has not improved the quality of the voice. Emphasis is placed on the necessity for speech training following any procedure to improve a cleft palate.

CARDIOLOGY

Edited by F. Redding Hood, M. D.
1200 North Walker, Oklahoma City

"The Treatment of Coronary Artery Disease." A. C. Ernestene. Cleveland Clinic Quarterly, 6:253, 1939.

The principal manifestations of coronary artery disease are angina pectoris, coronary thrombosis (with myocardial infarction), cardiac asthma (paroxysmal cardiac dyspnea), Adams-Stokes syndrome and congestive myocardial failure. The clinical picture and the management of each of these differs from the others.

ANGINA PECTORIS

This term is applied to "paroxysmal attacks of substernal pain which characteristically are precipitated by exertion or excitement and are relieved promptly by rest." The pain is described variously as a sense of fullness, pressure, tightness or heaviness in the anterior chest. The distress compels cessation of all activity and often gives a feeling of impending death. The pain at times radiates to the neck, jaws and inner aspect of the arms. The symptoms are promptly relieved in most instances by glyceryl trinitrate and similar preparations, but death sometimes occurs instantly during an attack.

It is essential that the patient be impressed with the necessity of limiting his activity so that, as far as possible, the induction of attacks can be avoided. Attacks are precipitated more readily during cold weather, so the patient must be instructed not to walk rapidly against the wind or through snow. Removal to a warmer climate is advisable when financially possible. Overeating or excess exercise after a meal predisposes to an attack. More frequent smaller meals are at times advisable. Overweight patients should be placed on a reduction diet, coffee and tea only allowed in moderation and the use of tobacco reduced to the acceptable minimum. Constipation should be avoided to prevent straining at stool.

Preparations designed to increase the blood flow through the diseased coronary arteries should be given a short therapeutic trial, for an occasional patient is thereby permitted to increase his daily activities, but in general the clinical value of these preparations is doubtful.

The value of glyceryl trinitrate and amyl nitrate in the management of angina pectoris has been proved. The action of the former is more enduring, the drug is cheaper and less unpleasant to use. A fresh tablet is dissolved under the tongue or chewed before swallowing, a dose of 1/200 grain often being as effective as a larger amount. This drug may be used for prevention as well as for treatment of an attack, and patients whose occupations require effort that usually precipitates an attack may use as many as 12 to 20 tablets a day before undertaking the unavoidable exertion. Taken before or immediately after eating, attacks liable to follow a meal may be prevented. Nitroglycerine used in this way does no harm and permits the patient to get along comfortably for a long time, but its use does not excuse the patient from avoiding attack-provoking activities.

Sedatives may help patients who worry or in whom emotional upsets induce anginal attacks. Occasionally doses of 0.5 to 1.0 ounce of whiskey or brandy with each meal permits an appreciable increase in exercise tolerance. "Digitalis is employed only in the presence of such evidence of myocardial insufficiency as dyspnea or limited activity, passive congestion of the lungs, and edema of the lower extremities."

The injection of alcohol into the upper four thoracic sympathetic ganglia is the safest surgical procedure which has been advocated and is as effective as any other. Neuritis of the infiltrated intercostal nerves is a frequent complication but is rarely a source of great complaint. Alcohol injections should be used more widely, but should be limited to those patients in whom other treatments fail.

Beck and his associates have sought to establish new cardiac blood supply by grafting part of the pectoral muscle upon the myocardium. Distinctly encouraging results have been achieved, and further progress in this field is awaited.

CORONARY THROMBOSIS

This pain is more severe and lasts longer than that of angina pectoris. Shock usually develops early, is followed within 24 hours by fever, leukocytosis, and increased erythrocyte sedimentation rate. A pericardial friction rub develops early and may last for several days.

Treatment is first directed to the relief of pain. To this end the usual 0.25 grain of morphine may be doubled if necessary and 0.25 grain doses repeated every 30 minutes may be continued until the distress is abated. The patient is placed in bed as soon as possible, kept warm, and not disturbed by frequent examinations. Small amounts of fluids are offered when the patient is free from nausea and vomiting. Stimulants, as caffeine sodium benzoate, are used only when the systolic blood pressure falls below 80mm. The oxygen tent may be employed in the severe attacks accompanied by cyanosis and intense dyspnea.

After controlling the initial shock and pain, little medication is required. Doses of 0.2 gm. (3 grains) of quinidine sulfate may be given 2 or 3 times daily as a possible prophylaxis against development of ventricular paroxysmal tachycardia and ventricular fibrillation. Sedatives in small doses may be necessary to control restlessness. Digitalis is used only in congestive myocardial failure or in auricular fibrillation with a rapid ventricular rate. The simple diet should not exceed 800 to 1000 calories. Enemas are not used until after the second or third day.

Rest in bed should be absolute, the patient is not allowed to feed himself, or change his position for at least two weeks, and should be continued for from 6 to 8 weeks, until the erythrocyte sedimentation rate becomes stationary at or near the normal level. Thereafter the patient is allowed out of bed for gradually increasing lengths of time, but cannot return to his business activities for 3 to 12 months, depending upon the severity of the attack.

"The most important complications of coronary thrombosis are: (1) sudden death due to rupture of the ventricle or to ventricular fibrillation, (2) ventricular paroxysmal tachycardia, (3) congestive heart failure, and (4) embolic accidents. Sudden death and ventricular paroxysmal tachycardia occur most commonly during the first two weeks after the occlusion. Ventricular tachycardia may be a forerunner of ventricular fibrillation or it may be directly responsible for the development of congestive heart failure. Its onset calls for the administration of increased amounts of quinidine sulfate. Congestive myocardial failure is treated by the usual measures, including the use of digitalis. After

acute coronary thrombosis, a mural thrombus commonly forms on the endocardial surface of the infarcted myocardium. Embolic accidents, the result of dislodgment of portions of the thrombus, may occur at any time during the first 6 weeks after the attack, but are most common during the earlier part of this period. The emboli may lodge in any part of the pulmonary or systemic circulation and their treatment usually is limited to symptomatic measures."

CARDIAC ASTHMA

This form of paroxysmal dyspnea is frequently caused by coronary artery disease. Morphine and the upright position are the two most important measures. The 0.25 grain dose of morphine hypodermically may be repeated if the patient is not improved within 20 minutes. When these measures fail, "aminophylline may be given by intravenous injection in doses of 0.448 gm. diluted with physiological solution of sodium chloride or 50% dextrose solution and may result in prompt improvement. In the absence of anemia, venesection should be carried out with the removal of 250 cc. to 500 cc. of blood—an effect similar to that of venesection may be obtained by applying blood pressure cuffs to the four extremities and inflating them to a pressure just above diastolic pressure. The administration of oxygen by means of a tent or by nasal catheter is also a measure of great value and should be instituted as promptly as possible." If acute pulmonary edema develops in spite of these measures, give strophanthin or digitalis (if not used earlier) intravenously.

Cardiac asthma due to failure of the left ventricle should be treated as any other evidence of impaired myocardial reserve. Complete digitalization followed by daily maintenance doses are indicated, and after mild attacks this alone may suffice to prevent the recurrence of paroxysms. After more severe attacks, absolute rest and strict limitation of activity thereafter are advised. Restriction of fluids and the use of diuretics may be helpful. The intravenous injection of 50 to 100 cc of 25 or 50 percent glucose solution daily for several days may help to diminish the frequency of attacks. The patient should sleep well propped up in bed, and sedatives may be used to insure sound sleep.

HEART BLOCK

When these patients present evidence of reduced myocardial reserve—the usual condition—the cautious administration of digitalis is indicated, using electorcardiographic control, and discontinuing the drug of the block increases. "In favorable cases, suitable amounts of digatilis not only relieve the symptoms of myocardial insufficiency but may also reduce the degree of block or abolish it entirely."

"The higher grades of heart block, and particularly complete auriculo-ventricular dissociation, may be complicated by Adams-Stokes attacks due to temporary standstill of the ventricles. The seizures are characterized by dizziness, syncope or convulsions, depending upon the duration of the ventricular systole. Adams-Stokes attacks are not common, but individuals in whom they occur are liable to have repeated seizures. The actual attacks seldom call for treatment, and therapy is directed toward preventing their recurrence. Occasionally, however, the standstill may be of such duration as to necessitate the intracardiac injection of epinephrine and this procedure may be directly responsible for the saving of life. The most effective drugs for preventing recurrent attacks are epinephrine (0.5 to 1.0 cc. of the 1:000 solution) by intramuscular injection every 3 or 4 hours and ephedrine sulfate (gr. ¾ or gr. ½) by mouth 3 or 4 times in 24 hours.

CONGESTIVE HEART FAILURE

Coronary artery disease often results in the gradual development of this condition instead of the forms just described. Treatment is absolute rest in bed, the proper administration of digitalis, sedatives, and diuretic drugs, restriction of fluid intake, and, less frequently, venesection and the mechanical removal of fluid from the thorax or abdomen.

ORTHOPAEDIC SURGERY

Edited by Earl D. McBride, M. D., F. A. C. S.
605 N. W. 10th, Oklahoma City

"The Restoration of Physiological and Anatomical Function In Old Ununited Intracapsular Fractures of the Neck of the Femur. Edward L. Compere, M.D., Chicago, Ill. John Lee, M.D., Los Angeles, Calif. Journal Bone and Joint Surgery, April, 1940, Vol. II, No. 2.

The authors wish to present a relatively new method of reconstruction in cases of old ununited fractures of the neck of the femur. They point out the reconstruction in the past was pioneered by Royal Whitman, later modified by Albee, Colonna and Campbell with additions from Brackett and Henderson and Jones. The Schanz osteotomy and Putti osteotomy have also been used. The principles of these have been primarily that of the removal of the head of the femur and substituting the trochanter or the neck in the acetablum.

In the case of Brackett's the principle of the operation is to hollow the head of the femur and insert the reshaped neck to obtain a leverage from the abductors. In the authors' present procedure two cortical tibial grafts are inserted across the fracture line and three or possibly four threaded pins slightly larger than a Kirschner wire are inserted into the neck of the femur and into the head. They have shown by actual tests of fresh specimens that the strength of these threaded wires is much greated than non-threaded and equals at least that of the Smith-Petersen nail, while the distracting force is considerably greater than the non threaded pins or nails.

Their technique is described, which consists of a Smith-Petersen approach and insertion of the graft and pins under carefully controlled technique. Following the operation no casts are applied. Patients are usually able to be up and on crutches in 18 days. Their primary point is the anatomical relationship they have established; the fact that the threaded pins do not endanger surviving branches of nutrient arteries; the function is not complicated by painful knees or limitation of the hips because of the lack of casts.

"A Study of Acute Infectious Lesions of the Intervertebral Disks." Ralph K. Ghormley, M.D., William H. Bickel, M.D., Douglas D. Dickerson, M.D. Southern Medical Journal, April, 1940, Vol. XXXIII, No. 4.

The authors bring to attention the occurrence of a lesion of the spine involving principally the intervertebral disks which has a febrile onset as a rule, which denotes the possibility of a primary or secondary infectious process as the underlying cause. A few cases have been reported in the literature which the authors cite. The history of these cases vary both as to severity and the type of onset. Pain was the most common; first complaint was patient being severely ill, and others only mildly ill; backache was the common complaint. Fever was present in 16 of the 20 cases the authors reviewed. 13 of the 20 cases were ill to the point of prostration and had to remain in bed. The findings on examination of these patients revealed spasm of the lumbar or psoas muscles as the most common single finding and tenderness of the affected region. Less commonly a list of the spine was noticed with loss of weight and irritation of the nervous system (central) as being a less common sign. An abscess was present in only one case, which appeared in an old nephroctomy scar. The most important single point is the x-ray which during the acute stage is usually normal but later on, there is a reduction in the thickness of one of the intervertebral disks; this is followed later by increased thinning of the space and later on proliferation of new bone along the margin of the vertebra involved. The history of a previous infection starts with influenza,

pneumonia peri-appendicitis, pyelitis, postpartum infection, perinephretic abscess and erysipelas were noted in several of these cases. Thus it is felt that this is a metastatic infection. These cases must be differentiated from a true osteomyelitis of the spine with abscess formation. Later with tuberculosis, typhoid spine, brucella abortus infection, lesions of the disk secondary to trauma, congenital absence of the disk and various forms of a malignant disease. Prognosis of the condition is excellent as a rule. Treatment is dependent on the severity of the disease. The treatment is systematic with rest in bed for relief of pain. Probably the most valuable point is that of a plaster of paris body cast with the spine in mild hyperextension. Fixation should be for two or three months.

ABSTRACTED BY: HOWARD B. SHORBE, M.D.
SUBMITTED BY: EARL D. McBRIDE, M. D.

UROLOGY

Edited by D. W. Branham, M. D.
502 Medical Arts Building, Oklahoma City

"Urological Manifestations of Appendicitis. Charles D. Ehlert. Journal of Urology, March 1940.

Recently the author was stimulated to study and review the various subjective and objective manifestations of appendicitis that might be confused with those arising as a result of lesions within the urogenital tract, in particular those confined to the urinary tract.

A thorough search of the literature revealed a surprising scarcity of material pertaining to urogenital symptoms occurring in appendicitis. Hematuria, dysuria, disorders of urination ars signs and symptoms occasionally mentioned but yet the mechanism of the production of these findings are poorly understood.

The authors review briefly the anatomical findings existing between the appendix and the urinary tract, noting that its position is extremely variable and can normally be in quite intimate relationship with the ureter, bladder, the lumbar sympathetic chain, right spermatic artery and the genitocrural nerve. He discussed the various urologic manifestations from a classified table, observing that they may take the form of disorders of urination, abnormalities of the urine, pain in the kidney ureter or right testicle. The intimate association of a diseased appendix to the above named structures rationally explain the urologic symptoms and signs often observed in instances of appendicitis.

The Present Status of Transurethral Resectionists, Competent and Otherwise. Frederick E. B. Foley. The Journal of Urology, April, 1940.

Prostatic resection is not now and never can be the subject to general appraisal of its status. Only surgical procedures that require no particular skill, ability or experience can be subject to such appraisal. The only factor that properly determines such appraisal is the clinical soundness of a surgical procedure when properly performed. Beyond this the evaluation of any surgical procedure becomes an appraisal of the skill, ability and experience of the operator. Dr. Foley specifically states that the title of his thesis is not the present status of the operation, prostatic resection, but of the individual who performs the operation, the resectionist.

His experience shows that great competence of the resectionist makes prostatic resection a valuable procedure to be used extensively, and limited competence makes the operation of limited clinical value and restricted use. For the completely incompetent operator it is never the operation of choice.

He cites the qualifications for a competent resectionist as an individual who first must have a liking for the operation as well as a broad experience in cystoscopic work, and of extreme importance a considerable experience in resection itself. He believes it is doubtful that in any other surgical procedure is there a greater premium on experience.

Comment: Every surgeon and particularly every urologist should realize the truth of the statements made in this article. Too long have we evaluated technical surgical procedures from the results obtained by the individual operator, and as long as we do so certain operations that demand skill, ability and experience will show an unfavorable balance.

It is refreshing to read such an article as Dr. Foley has written, for he has gone to the crux of a controversial subject. No operative procedure can be appraised unless the surgeons responsible for such operations are of the same skill, ability and experience. Resection of the prostate particularly, has suffered in this regard.

One can sum up that so far as resection of the prostate is concerned the skillful operator obtains good results and praises the operation, while the incompetent man's efforts are followed by failure and therefore he condemns its use.

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